Meridian 1

Software Input/Output Guide

Maintenance

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General

This Nortel Networks technical publication (NTP) documents Meridian 1 commands which may be input to:

- view and print status of switch information
- perform background tests
- disable, enable and test system hardware (e.g. a particular phone)

This NTP is applicable to Meridian 1 and Meridian SL-1 switches equipped with Release 25.40 software.

When a data administrator loads a Maintenance overlay into memory on a Terminal, the administrator may then type in any command documented in that overlay. The Meridian 1 responds to command entries either by changing the status of hardware or by presenting information on the Terminal. (The term “overlay” is synonymous with the terms “load” and “overlay program”.)

A list of available Feature Packages appears in this NTP. An alphabetical listing (sorted by Package mnemonic) of Feature Packages can be found on page 29.

Format of 553-3001-511

This NTP presents only maintenance overlays and text supplementary to these overlays. Overlay programs are identified by LD XX or LD XXX (for Options 11C, 51C, 61C, and 81C) where XX or XXX is the overlay number. Maintenance overlays are arranged in numerical order and appear in this NTP as separate modules.

Two general tables appear in each Load. The first general table is titled "*Basic commands*". It appears at the front of each load and often follows introductory text. The second general table concludes each Maintenance Load and is titled "*Alphabetical list of commands*".

The *Basic commands* Table

This table presents an abbreviated listing of that load's entire command selection. A brief description of the command is presented beside each command.

Shown below is an excerpt from a "*Basic commands*" table:

CDSP	Clears the maintenance display on active CPU to ....
CMIN ALL	Resets minor alarm indication on attendant consoles ...
CMIN c	Resets minor alarm indication on attendant consoles ...

Note that in a *Basic commands* table:

- There are no column headings.
- The list is always arranged in alphabetical order.
- The corresponding comment is typically brief.

"*Basic commands*" tables present in less detail all entries in the "*Alphabetical list of commands*" table.

The *Alphabetical list of commands* Table

This table provides a more detailed description of a given command. Shown below is an excerpt from an *Alphabetical list of commands* table:

Command	Description	Pack/Rel
DISI loop c	Disable carrier c on RPE loop when idle. The number of channels still busy on the carrier may be checked using the STAT command. The message ...	rpe-1

Note that in an Alphabetical list of commands table:

- The description is often expansive.
- The package and release column provides the mnemonic of the package that must be equipped on the switch in order to receive this prompt. (In this example, the “rpe” package must be equipped to enter the DISI loop c command.) The number following the hyphen (“1” in this example) denotes the Release of software in which the package was made available.

Notational conventions

- Both upper and lower case are used in this book to distinguish between Prompts, Commands, and Variables
- Lowercase variables are used in this book to represent many possible responses. The following table lists a few key variables which appear throughout this NTP:

Variable	Meaning
aa	Text string
aaa bbb	Alphabetic or alphanumeric characters
c	Customer Number
c (u)	Option 11C Terminal Number (TN) Card, Unit; where unit is optional
c u	Option 11C Terminal Number (TN) Card and Unit
c 0 0 u	Terminal Number (TN) for Option 11C. A TN consists of a card, two filler digits, and a unit.
dn	Directory Number (DN)
hh mm	Hours (0 - 23) and Minutes (00 - 59)
loop	Network Loop Number
l s c (u)	Terminal Number (TN), Loop, Shelf, Card, Unit; where unit is optional
l s c u	Terminal Number (TN) (loop, shelf, card, and unit number)
mmm	Month (JAN - DEC) when used in a date.
nnn xxx	Numeric characters
xxx	Numeric value of set number of digits
x...x	Numeric value of several digits
yy mm dd	Year (00 - 99), Month (1 - 12) and Day (1 - 31)

- **<cr>** denotes that the carriage return key is to be depressed without inputting any data. The carriage return leaves the existing value unchanged, or enters the default value if there is no existing value.
- **<space>** denotes that the space bar is to be depressed instead of **<cr>**.

- **<value>** denotes a variable value, generally for a prompt response.
- For example, **<NIPN>** is the value responded to the NIPN prompt and **<min>** is a minimum value.
- Default values are shown in parentheses
- A range of numbers is denoted by giving the lower and upper limits of the range. For example, given the range **0 - (2) - 3**, the user may manually enter 0, 1, 2, or 3, or carriage return (press **<cr>**) to enter the default of 2.
- Default values are shown in brackets in the response column where applicable. Pressing **<cr>** enters the default.
- Where applicable, precede an entry with an **X** to delete that entry or set your entry to default value.

Related documentation

Feature description

Feature information is provided in the *Features and Services* (553-3001-306).

Operational testing

Information and instruction regarding the testing of features and services for telephone sets and attendant (ATT) consoles is contained in the *Features and Services* (553-3001-306).

Administration Overlays

Information regarding Administration overlay programs is provided in *Administration* (553-3001-311).

Error Messages

Information is provided to interpret and respond to system error messages in *System Messages Guide* (553-3001-411).

Communicating with the Meridian 1

To communicate with the system, the following input/output devices at either on-site (local) or remote locations are required:

- TTY or VDT terminal as an input/output device
- RS-232-C compatible printer as an output only device
- Meridian SL-1 maintenance telephone set as an input only device

The input/output system can operate with terminals having the following characteristics:

- Interface: RS-232-C
- Code: ASCII
- Speed: 110, 300, 1200, 2400, 4800, and 9600 baud
- Loop Current: 20 mA

Accessing the Meridian 1

Logging in and out

When you access the system through a system terminal, a login procedure is required (refer to Procedure 1). All system passwords are initially set as 0000, but you can change passwords through the Configuration Record (LD 17). See also "Limited Access to Overlays" in the *Features and Services* (553-3001-306).

Level 1 password. This general password is used in the log in sequence to provide general access to the system by service personnel. Once the system is accessed, the service personnel may then perform any necessary administration or maintenance tasks.

Level 2 password. This administrative password is known and used only by the data administration manager. The password is used to protect the system configuration record and is required when using LD 17 to change either the general or the administrative passwords.

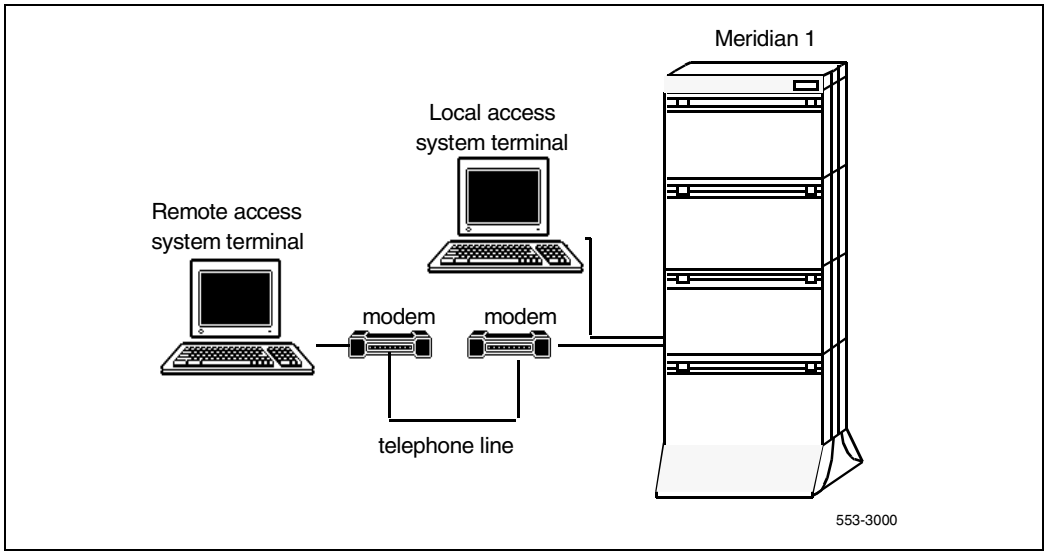
Local and remote access

Input/output terminals may operate either locally or remotely. However, data modems are required for terminals located more than 50 feet (15 meters) from the central control interface. Both local and remote terminals interface with the system through Serial Data Interface (SDI) cards.

Many devices can be installed at local and remote locations. When a system terminal is installed locally, it is connected directly to a SDI Card. When a system terminal is installed at a remote location, modems (or data sets) and a telephone line are required between the terminal and the SDI card. Figure 1 : Local and remote access to a system terminal shows typical system terminal configurations.

Multiple devices can simultaneously communicate with the Meridian 1 if Multi User Login is enabled. Refer to *System Management Applications* (553-3001-301) for details regarding the Multi User Login Feature.

Figure 1: Local and remote access to a system terminal



HOST mode access

A system terminal is connected through an SDI port. SDI ports are defined in LD 17 and may be configured for different types of outputs. For example, one terminal may be defined for traffic reports, another for maintenance messages. Two ports may be defined for the same output.

It is possible to log in as a HOST. When in the HOST mode, the outputs defined for the port are only output to that port. This is useful for applications, such as Meridian Manager, which require high speed ports. Once the HOST port has logged out, the outputs to the other ports are restored.

To configure a system terminal, see the “System and limited access passwords” in the configuration record (LD 17). See also OVL403 and OVL404 messages, which are output to the ports affected by a HOST log in.

Line mode interface log in procedure

Line Mode interface gives the ability to edit entries made on the command line. With Line Mode enabled (LON), the backspace can be used to edit input. The entered information (responses, for example) is not processed until the <CR> is entered. When the Line Mode is disabled (LOF), the system terminal interface does not allow correction on the command line.

Procedure 1: Logging in and out

1 Press <cr>

- If the response is : **OVL111 nn TTY** or **OVL111 nn SL-1**
- That means: Someone else is logged into the system. When they have logged off, press <cr> and go to Step 2.
- If the response is : **OVL111 nn IDLE** or **OVL111 nn BKGD**
- That means: You are ready to log into the system. Go to Step 2.
- If the response is: **OVL000 >**

That means: This is the program identifier which indicates that you are have already logged into the system. Go to Step 4.

2 Enter : **LOGI, then press <cr>**

The normal response is : **PASS?**

If there is any other response, refer to the message text in the System Error Messages NTP.

3 Enter : **Level 1 or Level 2 password** and press <cr>.

If the password is correct, the system responds with the prompt: **>**

4 Load a program by entering : **LD XXX**(where *XXX* represents the overlay program number).

5 Perform tasks

6 End the program by entering : **END** or ********

7. Always end the log in session with : **LOGO**

The background routines are then loaded automatically.

Access through the maintenance telephone

A telephone functions as a maintenance telephone when you define the class-of-service as MTA (maintenance telephone allowed) in the Multi-line Telephone Administration program (LD 11). A maintenance telephone allows you to send commands to the system, but you can only use a subset of the commands that can be entered from a system terminal.

You can test tones and outpulsing through the maintenance telephone. Specific commands for those tests are given in the Tone and Digit Switch and Digitone Receiver Diagnostic (LD 34).

To access the system using the maintenance telephone, see Procedure 2. To enter commands, press the keys that correspond to the letters and numbers of the command (for example, to enter LD 42 return, key in 53#42##). Table 2 shows the translation from a keyboard to a dial pad.

The following overlays (LDs) ARE accessible from a maintenance telephone: 30, 32, 33, 34, 35, 36, 37, 38, 41, 42, 43, 45, 46, 60, 61, and 62

The following overlays (LDs) ARE NOT accessible from a maintenance telephone: 31, 40, 48, 77, 80, 92, 96, 135, 137

Note: To use the maintenance telephone, the loop for that telephone must be operating.

Table 2 : Translation from keyboard to dial pad

Keyboard			Dial pad
		1	1
A	B	C	2
D	E	F	3
G	H	I	4
J	K	L	5
M	N	O	6
P	R	S	7
T	U	V	8
W	X	Y	9
		0	0
		Space or #	#
		Return	##
		*	*

Note: There is no equivalent for Q or Z on a dial pad.

Procedure 2: Access through the maintenance telephone

1 Press the prime DN key.

2 Place the set in maintenance mode by entering : **xxxx91**

Where: “xxxx” is the customer Special Prefix (SPRE) number. It is defined in the Customer Data Block and can be printed using LD 21. The SPRE number is typically “1” (which means you would enter 191).

3 Check for busy tone by entering “return” : **##**

— If there is no busy tone, go to Step 4.

— If there is a busy tone, a program is active. To end an active program and access the system enter : ********

4 Load a program by entering : **53#xx##**

Where : "xx" represents the number of the overlay program

5 Perform tasks.

6 To exit the program and return the telephone to call processing mode, enter : ********

Background routines are then loaded automatically.

Accessing Meridian Mail

Option 11C allows access to Meridian Mail Administration & Maintenance through a shared terminal on the Option 11C. To access the Meridian Mail system, log in and enter: AX. To exit from Meridian Mail, press the Control key and the closed square bracket ( ]) simultaneously.

System memory and disk space

The following memory information is output when an administration program is loaded. This information is used to plan the addition of new features, such as speed call lists, which require memory and disk space.

11C, 51C, 61C and 81C systems

MEM AVAIL: (U/P): pppppp USED: qqqqqq TOT: rrrrr

or (depending on the total amount of memory)

MEM AVAIL: (U-ppppp1 P-ppppp2): USED: qqqqqq TOT: rrrrr

DISK RECS AVAIL: xxxxx

Legend :

Element	Definition
ppppp1	Amount of unprotected memory available for use (in words)
ppppp2	Amount of protected memory available for use (in words)
ppppp	Total memory available for use (ppppp1 + ppppp2) (in words)
qqqqq	Total amount of memory used (in words)
rrrrr	Total amount of memory (in words)
xxxxx	Floppy disk records available for storage of additional data

Low memory and disk warnings

If the amount of memory or disk space is low, the following messages are output on the 11C, 51C, 61C and 81C systems.

WARNING: LOW MEMORY
WARNING: LOW DISK
WARNING: LOW MEMORY/DISK

When these messages appear, avoid performing further administration changes which require more memory and disk space. These changes may be lost during the next data dump.

When low memory or disk problems occur, a review of system memory is recommended. Memory may be reclaimed by removing unused features. For example, the system may have speed call lists which are no longer used and can be removed. In addition, the Speed Call List program (LD 18) has been enhanced to provide a method of computing the memory and disk requirements of new lists.

A disk record stores approximately 500 words of protected data store. The number of disk records depends on the type of floppy disk used:

- 3.5 inch high density floppy = maximum of 1425 records
- 3.5 super density = maximum of 2850 records
- 5.25 inch floppy = maximum of 1140 records

Note 1: Be sure the correct floppy type is defined. See prompts ADAN and FTYP in LD 17.

Note 2: These messages are not output after sysload until a data dump is done.

System Look up Messages

On Option 11C, 51C, 61C, or 81C systems equipped with System Errors and Events Lookup package 245, it is possible to display system messages on screen. System messages must first be loaded into the switch by entering ERR <cr>. Specific system messages may then be viewed on screen if the user enters the desired system error code and <cr>. The following example shows the data entries necessary to view error message: SCH946.

- Login to switch
- PASS(Enter only your password)
- ERR <cr>(The user must type “ERR” and press return)
- SCH946 <cr>(The user must type “SCH946” and press return)

The screen will now display the error message corresponding to SCH946. In this case, that message is:

Invalid User Type

Multi-User Login

Meridian 1 Multi-User Login (MULTI_USER) (package 242) enables up to five users to log in, load, and execute overlays simultaneously. These three users are in addition to an attendant console or maintenance terminal. The multi-user capability increases the efficiency of craftspersons by enabling them to perform tasks in parallel. To facilitate this operating environment, Multi-User Login includes significant functionality:

- Database conflict prevention
- Additional user commands
- TTY log files
- TTY directed I/O

For further information refer to the Overlay Loader and Multi-User Login section in this Guide.

User commands

User commands are available at the > prompt (after login but with no overlay executing), or from within an overlay. To issue a command from within an overlay, precede the command with an exclamation point (!).

For example, to issue the WHO command from within an overlay, type:

!WHO

For more information on User commands, refer to the Overlay Loader and Multi-User Login section in this guide.

Maintenance display codes

Maintenance displays are located on the faceplate of certain circuit cards. A maintenance display code is a one-, two-, or three-digit alphanumeric code which can indicate the status of the system and identify faulty equipment. For a detailed definition of these codes, see the section titled “HEX” in the System Error Messages NTP.

Time and date of fault

The system identifies the time that faults are detected. When a diagnostic message is output, a timestamp is output within 15 minutes. The format is:

TIMxxx hh:mm dd/mm/yy CPU x

Where: **xxx** is the system ID

The time, date, and system ID are set in LD 2.

Alphabetical List of Packages

Listed below is a comprehensive alphabetical list of packages which may be equipped on your Meridian 1.

Mnemonic	Feature Name	Number	Release
AA	Attendant Administration	54	1
AAA	Attendant Alternative Answering	174	15
AAB	Automatic Answerback	47	1
ABCD	16-Button Digitone/Multifrequency Telephone	144	14
ACDA	Automatic Call Distribution, Package A	45	1
ACDB	Automatic Call Distribution, Package B	41	1
ACDC	Automatic Call Distribution Package C	42	1
ACDD	Automatic Call Distribution Package D	50	2
ACDE	ACD/DN Expansion	388	25.4
ACLI	Analog Calling Line Identification	349	24
ACNT	Automatic Call Distribution, Account Code	155	13
ACRL	AC15 Recall	236	20
ADMINSET	Set Based Administration	256	21
ADSP	ACD Night Call Forward without Disconnect Supervision	289	23
AFNA	Attendant Forward No Answer	134	14
AINS	Automatic Installation (Option 11C only)	200	16
AIOD	Automatic ID of Outward Dialing	3	1
ALRM_FILTER	Alarm Filtering	243	19
AMP	Automated Modem Pooling	78	5
ANI	Automatic Number Identification	12	1
ANIR	ANI Route Selection	13	1
AOP	Attendant Overflow Position	56	1

Mnemonic	Feature Name	Number	Release
APL	Auxiliary Processor Link	109	10
ARDL	Automatic Redial	304	22
ARFW	Attendant Remote Call Forward	253	20
ARIE	Aries Digital Sets	170	14
ATAN	Attendant Announcement	384	25.4
ATM	Automatic Trunk Maintenance	84	7
ATX	Autodial Tandem Transfer	258	20
AUXS	Automatic Call Distribution Package D, Auxiliary Security	114	12
AWU	Automatic Wake-Up	102	10
BACD	Basic Automatic Call Distribution	40	1
BARS	Basic Alternate Route Selection	57	1
BASIC	Basic Call Processing	0	1
BAUT	Basic Authorization Code	25	1
BGD	Background Terminal	99	10
BKI	Attendant Break-In/Trunk Offer	127	1
BNE	Business Network Expansion	367	25
BQUE	Basic Queuing	28	1
BRI	Basic Rate Interface	216	18
BRIL	BRI line application	235	18
BRIT	ISDN BRI Trunk Access	233	18
BRTE	Basic Routing	14	1
BTD	Busy Tone Detection Tone	294	21
CAB	Charge Account/Authorization Code	24	1
CALL ID	Call ID (for AML applications)	247	19
CASM	Centralized Attendant Services (Main)	26	1
CASR	Centralized Attendant Services (Remote)	27	1
CBC	Call-by-Call Service	117	13
CCB	Collect Call Blocking	290	21
CCDR	Calling line Identification in Call Detail Recording	118	13
CCOS	Controlled Class Of Service	81	7
CDP	Coordinated Dialing Plan	59	1
CDR	Call Detail Recording	4	1
CDRE	Call Detail Recording Expansion (7 digit)	151	13
CDRQ	ACD CDR Queue Record	83	3

Mnemonic	Feature Name	Number	Release
CDRX	Call Detail Recording Enhancement	259	20
CHG	Charge Account for CDR	23	1
CHINA	China Attendant Monitor Package	285	21
CHTL	China Toll Package	292	21
CISMFS	Commonwealth of Independent States Multifrequency Shuttle Signalling	326	23
CIST	Commonwealth of Independent States - Trunk	221	21
CLNK	Call Detail Recording, Data Link	6	1
CMAC	N/W Communications Management Center	30	1
CNAME	Calling Name Delivery	333	23
CNUMB	Calling Number Delivery	332	23
COOP	Console Operations	169	14
CORENET	Core Network Module	299	21
CDIR	Corporate Directory	381	25
CPCI	Called Party Control on Internal Calls	310	22
CPGS	Console Presentation Group	172	15
CPIO	Call Processor Input/Output (Option 81C)	298	21
CPND	Calling Party Name Display	95	10
CPP	Calling Party Privacy	301	21
CPP_CNI	CP Pentium Backplane for Intel Machine	368	25
CPRK	Call Park	33	2
CPRKNET	Call Park Networkwide	306	22
CSL	Command Status Link	77	8
CSLA	CSL with Alpha Signalling	85	8
CTY	Call Detail Recording on Teletype Terminal	5	1
CUST	Multiple-Customer Operation	2	1
CWNT	Call Waiting Notification (Meridian 911)	225	19
DASS2	Digital Access Signaling System 2	124	16
DBA	Data Buffering and Access	351	24
DCON	M2250 Attendant Console	140	15
DCP	Directed Call Pickup	115	12
DDSP	Digit Display	19	1
DHLD	Deluxe Hold	71	4
DI	Dial Intercom	21	1
DISA	Direct Inward System Access	22	1

Mnemonic	Feature Name	Number	Release
DKS	Digit Key Signaling	180	1
DLDN	Departmental Listed Directory Number	76	5
DLT2	M2317 Digital Sets	91	9
DMWI	DPNSSI Message Waiting Indication	325	23
DNDG	Do-Not-Disturb, Group	16	1
DNDI	Do-Not-Disturb, Individual	9	1
DNIS	Dialed Number Identification System	98	10
DNWK	DPNSS Network Services	231	16
DNXP	Directory Number Expansion (7 Digit)	150	13
DPNA	Direct Private Network Access	250	21
DPNSS189I	Enhanced DPNSS1 Gateway	284	20
DPNSS	Digital Private Network Signaling System 1	123	16
DPNSS_ES	DPNSS Enhanced Services	288	21
DRNG	Distinctive Ringing	74	4/9
DSET	M2000 Digital Sets	88	7
DTI2	2 Mbit Digital Trunk Interface	129	10
DTD	Dial Tone Detector	138	10
DTOT	DID to Tie (Japan only)	176	16
EAR	Enhanced ACD Routing	214	17
ECCS	Enhanced Controlled Class of Service	173	15
ECT	Enhanced Call Trace	215	18
EDRG	Executive Distinctive Ringing	185	16
EES	End-To-End Signaling	10	1
EMUS	Enhanced Music	119	12
ENS	Enhanced Night Service	133	20
EOVF	ACD Enhanced Overflow	178	15
ESA	Emergency Services Access	329	23
ESA_CLMP	Emergency Services Access Calling Number Mapping	331	23
ESA_SUPP	Emergency Services Access Supplementary	330	23
ETSI_SS	Euro Supplementary service	323	22
EURO	Euro ISDN	261	20
FAXS	HiMail Fax Server	195	18
FCC68	FCC Compliance for DID Answer Supervision	223	17
FCA	Forced Charge Account	52	1

Mnemonic	Feature Name	Number	Release
FCBQ	Flexible Call Back Queuing	61	1
FCDR	New Format CDR	234	18
FDID	Flexible DID	362	24
FFC	Flexible Feature Codes	139	15
FFCSF	Boss Secretary Filtering (FFC activation)	198	15
FGD	Feature Group D	158	17
FIBN	Fibre Network	365	25
FNP	Flexible Numbering Plan	160	14
FRTA	French Type Approval	197	15
FTC	Flexible Tones and Cadences	125	16
FTDS	Fast Tone and Digit Switch	87	7
FXS	Flexible Services Package	152	25
GCM	General Call Monitor	344	24
GRP	Group Call	48	1
GPRI	International 1.5/2.0 Mb/s Gateway	167	18
GSCM	Global Call Monitoring	344	24
HIST	History File	55	1
HOSP	Hospitality Management	166	16
HOT	Enhanced Hot Line	70	4/10
HSE	Hospitality Screen Enhancement	208	17
HVS	Meridian Hospitality Voice Service	179	16
IAP3P	Integrated Services Digital Network Application Module Link for Third Party Vendors	153	13
ICDR	Internal CDR	108	10
ICP	Intercept Computer Interface	143	10
IDA	Integrated Digital Access	122	16
IDC	Incoming DID Digit Conversion	113	12
IEC	Inter-Exchange Carrier	149	13
IMS	Integrated Message System UST and UMG are part of IMS Package.	35	2
INBD	International nB+D	255	20
INTR	Intercept Treatment	11	1
IPRA	International Primary Rate Access	202	15
ISDN	Integrated Services Digital Network	145	13
ISDN INTL SUP	ISDN Supplementary Features	161	14

Mnemonic	Feature Name	Number	Release
ISL	ISDN signaling Link	147	13
ISPC	ISDN Semi-Permanent Connection	313	22
IVR	Hold in Queue for IVR	218	18
JDMI	Japan Digital Multiplex Interface	136	14
JPN	Japan Central Office Trunks	97	9
JTDS	Japan Tone and Digit Switch	171	14
JTTC	Japan Telecommunication Technology Committee	335	23
KD3	Spanish KD3 DID/DOD interface	252	20
LAPW	Limited Access to Overlays	164	16
L1MF	X08 to X11 Gateway	188	15
LLC	Line Load Control	105	10
LMAN	Automatic Call Distribution Load Management (C2)	43	1
LNK	ACDD, Auxiliary Link Processor	51	2
LNR	Last Number Redial	90	8
LSCM	Local Steering Code Modifications	137	10
LSEL	Automatic Line Selection	72	4
M3900_PROD_ENH	M3900 Phase III Productivity Enhancement	386	25.4
M911 ENH	M911 Enhancement Display	249	25
MAID	Maid Identification	210	17
MASTER	Euro ISDN Trunk - Network Side	309	22
MAT	MAT 5.0	296	22
MC32	Meridian Companion Enhanced Capacity	350	24
MCBQ	Network callback Queuing	38	2
MCDR	Mini CDR	31	1
MCMO	Meridian 1 Companion Option	240	19
MCT	Malicious Call Trace	107	10
MEET	MCDN End to End Transparency	348	24
MFC	Multifrequency Compelled Signaling	128	9
MFE	Multifrequency Signaling for Socotel	135	10
MINT	Message Intercept	163	15
MLIO	Multi-Language I/O Package	211	16
MLM	Meridian Link Modular Server	209	16
MLMS: Brazilian	Brazilian	264	20
MLMS: Chinese (PRC)	Chinese (PRC)	265	20

Mnemonic	Feature Name	Number	Release
MLMS: Chinese (ROC)	Chinese (ROC)	266	20
MLMS: Dainish	Dainish	267	20
MLMS: Dutch	Dutch	268	20
MLMS: Finnish	Finnish	269	20
MLMS: Canadian French	Canadian French	270	20
MLMS: European French	European French	271	20
MLMS: German	German	272	20
MLMS: Italian	Italian	273	20
MLMS: Japanese	Japanese	274	20
MLMS: Korean	Korean	275	20
MLMS: Norwegian	Norwegian	276	20
MLMS: Russian	Russian	277	20
MLMS: European Spanish	European Spanish	278	20
MLMS: Latin Am. Spanish	Latin American Spanish	279	20
MLMS: Swedish	Swedish	280	20
MLWU	Multi-Language Wake Up	206	16
MMOPKG	M1 Microcellular Option	303	22
MMSN	M1 Mobility Multi-Site Networking	314	22
MPH	Meridian 1 Packet Handler	248	19
MPO	Multi-Party Operations	141	20
MOSRPKG	Mobility Server	302	22
MQA	Multiple Queue Assignment	297	21
MR	PPM/Message Registration	101	10
MSB	Make Set Busy	17	1
MSDL	Multipurpose Serial Data Link	222	18
MSDL SDI	MSDL Serial Data Interface	227	19
MSDL STA	MSDL Single Terminal Access	228	19
MSMN	Mobility Networking	370	25
MULTI_USER	Multi-User Login	242	19
MUS	Music	44	1
MUSBRD	Music Broadcast	328	23

Mnemonic	Feature Name	Number	Release
MWC	Message Waiting Center	46	1
MWI	Message Waiting Indication Interworking with DMS	219	19
M911	Meridian 911	224	19
NACD	Network Automatic Call Distribution	207	15
NARS	Network Alternate Route Selection	58	1
NAS	Network Attendant Service	159	20
NAUT	Network Authorization Code	63	1
NCOS	Network Class Of Service	32	1
NFCR	New Flexible Code Restriction	49	2
NGCC	Nortel Symposium Call Center	311	22
NGEN	Next Generation Connectivity	324	22
NI2	North America National ISDN Class II Equipment	291	21
NI-2 CBC	NI-2 Call By Call Service Selection	334	23
NI-2 Name	NI-2 Name Display Supplementary Service	385	25.4
NMCE	NGenR2/Meridian Communications Exchange Connectivity	364	24
NMS	Network Message Services	175	16
NSC	Network Speed Call	39	2
NSIG	Network Signaling	37	2
NTRF	Network Traffic Measurements	29	1
NTWK	Advanced ISDN Network Services	148	13
NXFR	Network Call Transfer	67	3
ODAS	Office Data Administration System	20	1
OHOL	On Hold On Loudspeaker	196	20
OHQ	Off-Hook Queuing	62	1
OOD	Optional Outpulsing Delay	79	5
OPAO	Outpulsing, asterisk (*) and octothorpe (#)	104	
OPCB	Operator Call Back (China #1)	126	14
OPEN ALARM	Open Alarms	315	22
OPTF	Optional Features	1	1
ORC_RVQ	Remote Virtual Queueing	192	18
OVLP	Overlap Signaling (M1 to M1 and M1 to 1TR6 CO)	184	15
PAGENET	Call Page Networkwide	307	22
PAGT	Automatic Call Distribution, Priority Agent	116	12
PBXI	1.5 Mbit Digital Trunk Interface	75	5

Mnemonic	Feature Name	Number	Release
PEMD	Pulsed E&M (Indonesia, French Colisée)	232	18
PHTN	Phantom TN	254	20
PLDN	Group Hunt/DN Access to SCL	120	15
PLUGIN	Plug-In	366	24
PMSI	Property Management System Interface	103	10
PONW	Priority Network Override	389	25.4
POVR	Priority Override/Forced Camp-On	186	20
PQUE	Network Priority Queuing	60	1
PRA	Primary Rate Access (CO)	146	13
PRI2	2.0 Mb/s Primary Rate Interface	154	14
PXLT	Pretranslation	92	8
QSIG	Q reference signaling point Interface	263	20
QSIG GF	QSIG Generic Functional protocol	305	22
QSIG SS	QSIG Supplementary service	316	22
RAN	Recorded Announcement	7	1
RANBRD	Recorded Announcement Broadcast	327	23
RCK	Ringing Change Key	193	15
REMOTE_IPE	Remote IPE	286	
RMS	Room Status	100	10
ROA	Recorded Overflow Announcement	36	2
RPA	Radio Paging	187	15
RPE1.5	1.5 Mbit Remote Peripheral Equipment	15	1
RPE2	2.0 Mb/s Remote Peripheral Equipment	165	15
RSDB	Resident Debug	82	9
RUCM	Russian Call Monitoring	353	24
RVQ	Remote Virtual Queuing	192	18
SACP	Semi-Automatic Camp-On	181	15
SAMM	Stand-alone Meridian Mail	262	20
SAR	Scheduled Access Restrictions	162	20
SCC	Tone Detector Special Common Carrier	66	7
SCDR	Station Activity Records	251	20
SCI	Station Category Indication	80	7
SCMP	Station Camp-On	121	20
SECL	Series Call	191	15

Mnemonic	Feature Name	Number	Release
SLP	Station Loop Preemption	106	10
SLST	Meridian SL-1 ST Package	96	9
SMS	Short Message Service	346	24
SNR	Stored Number Redial	64	3
SR	Set Relocation	53	1
SSAU	Station Specific Authorization Codes	229	19
SS5	500 Set Dial Access to Features	73	4
SS25	2500 Set Features	18	1
SSC	System Speed Call	34	2
STA	Single Term Access	228	19
STS	Set to Set Messaging	380	25
SUPP	International Supplementary Features	131	9
SUPV	Supervisory Attendant Console	93	8
SVCT	Supervisory Console Tones	189	20
SYS_MSG_LKUP	System Errors and Events Lookup	245	19
TAD	Time and Date	8	1
TAT	Trunk AntiTromboning	293	21
TATO	Trunk AntiTromboning	312	
TBAR	Trunk Barring	132	20
TDET	Tone Detector	65	7
TENS	Multiple-Tenant Service	86	7
TFM	Trunk Failure Monitor	182	15
THF	Trunk Hook Flash (Centrex)	157	14
TMON	Traffic Monitoring	168	
TOF	Automatic Call Distribution, Timed Overflow Queuing	111	10
TSET	M3000 Digital Sets	89	7
TVS	Trunk Verification from Station	110	9.32
TWR1	Tiawan R1	347	24
UIGW	Universal ISDN Gateways	283	20
UK	United Kingdom	190	16
VAWU	VIP Auto Wake Up	212	17
VMBA	Voice Mailbox Administration	246	19
VIR_OFF_ENH	M3900 Phase III Virtual Office Enhancement	387	25.4
VIRTUAL_OFFICE	Virtual Office	382	25

Mnemonic	Feature Name	Number	Release
VNS	Virtual Network Services	183	16
XCT0	M1 Enhanced Conference, TDS and MFS	204	15
XCT1	M1 Superloop Administration (LD 97)	205	15
XPE	Meridian 1 XPE	203	15
ZPAG	Zone Paging	281	25

Overlay Loader and Multi-User Login

Overlay loader

The Overlay loader becomes active after the login sequence and password , it will then accept input commands from the Serial Data Interface Terminals (SDI) after the “>” prompt (after login but with no overlay executing).

Overlay loader commands 11C, 51C, 61C and 81C

The Overlay loader commands are as follows:

Command	Description
ERR	Display the last error message given. Only available on systems with System Errors and Events Lookup package 245 equipped.
ERR x..x	Specific system messages are displayed (package 245 required).
	Where: x..x = specific error type and number (ex. ERR SCH1001)
FDLC	Cancel or stop system wide flash download for M39xx units.
LD xxx	Load overlay program into the overlay area, then the loaded program assumes control.
	Where: xxx = number of the desired overlay program.
LOF	Disable Line Mode interface (TTY setup: 7 data bits, space parity, 1 stop bit).
LOGO	Exit overlay loader and Log-off the system.
LON	Enable Line Mode interface (TTY setup: 7 data bits, space parity, 1 stop bit).
****	Aborts the current overlay program, allowing another overlay program to be loaded into the overlay area.

Multi-User Login commands

Multi-User Login enables up to five users to log in, load, and execute overlay programs simultaneously. These three users are in addition to an attendant console or maintenane terminal. The Multi-User capeability also introduces several user commands. With these commands, the user has the ability to:

- determine who is logged into the system
- communicate with other connected users
- halt and resume background and midnight routines
- initiate and terminate terminal monitoring
- change printer output assignment

Note: MULTI_USER must be enabled in LD 17.

With multiple overlays operating concurrently, there is the potential for a database conflict if two or more overlays attempt to modify the same data structure. Multi-User Login software prevents such conflicts. When a user requests that an overlay be loaded, the software determines if it could pose a potential conflict with an overlay that is already executing. If no conflict exists, the requested overlay is loaded. If a conflict does exist, the system issues the following message:

OVL429-OVERLAY CONFLICT

The user can try again later, or try to load a different overlay.

Multi-User commands

A user can issue any of the commands listed in the following table from Overlay loader or from any position within an overlay. Precede the command with an exclamation point (!) to issue a command from within an overlay.

For example, to issue the WHO command from within an overlay, type:

!

>WHO

> <CR> takes user back to the same position in current overlay

Command	Description
WHO	Displays user name, port ID, and overlay loaded for each logged-in terminal, as well as the user's MON and SPRT commands (see below).
SEND xx	Sends a message to logged-in terminal xx. When the system responds with a " SEND MSG: " prompt, enter the message text yy...yy (up to 80 characters). The text of a message is considered private and therefore is not written to any log file.
SEND ALL	Sends a message to all logged-in terminals. When the system responds with a " SEND MSG: " prompt, enter the message text yy...yy (up to 80 characters). The text of a message is considered private and therefore is not written to any log file.
SEND OFF	Prevents messages sent by other terminals from appearing at the user's terminal.
SEND ON	Enables messages sent by other terminals to appear at the user's terminal.
FORC xx	Forces terminal xx to log off (the requesting user must log in with LAPW or a level 2 password).
HALT	Stops background and midnight routines during a login session.
HALT OFF	Resumes halted background and midnight routines.
MON xx	Initiates monitoring for terminal xx (the requesting user must log in with LAPW or a level 2 password). The monitored terminal receives a message at the beginning and end of the monitored period.
MON OFF	Turns off the monitor function.
SPRT xx	Assigns printer output to port xx.
SPRT OFF	Resets printer output assignment.

Note: For complete feature information on Multi-User Login, consult the *Management Applications* NTP.

LD 01: Template audit

Templates are used to store data which is common to many telephones. This includes items such as key functions and Class of Service. The Template Audit program saves protected memory by eliminating unused or duplicate telephone templates.

LD 1 also performs the following consistency checks.

User Count Scan

All telephones in the system are scanned to find the total number of users for a template.

If a template is found to have no users, the entire template is removed with the warning message 'NO USERS FOUND'. If a template is found to have an incorrect user count, the correct user count is written to the template, and the warning message 'USER COUNT LOW' or 'USER COUNT HIGH' is output. If the user count is accurate, the message 'USER COUNT OK' is output.

Duplicate Template Scan

Each template is checked against every other template for possible duplication. A template is considered a duplicate of another if all of the following conditions are met:

- the checksums are the same
- the template lengths and the hunt offsets are the same
- all template entries are the same

If a match is found, the warning message 'DUPLICATE OF xxxx' is output. A scan is then initiated to locate all users of the current template and move them to the matched template.

For each of these users found, the template number in the telephone data block and the user count is updated. After all of the users of the current template are moved to the matched template, the current template is removed.

Template Checksum Audit

A checksum is a binary sum of the template length, hunt offset, and template entries. The checksum is calculated for each template and compared with the existing template checksum. If the existing checksum is correct, the message 'CHECKSUM OK' is output. Otherwise, the checksum is corrected with the warning message 'CHECKSUM WRONG'.

Key Lamp Strip Audit

Two checks are made to correct Key Lamp Strip (KLS) corruption. First, the template length is compared to the number of KLS indicated in the protected line block. The second check verifies that the last word of the template reflects a 'NULL' key.

If these checks detect any discrepancies, they are corrected with the warning message 'CORRUPTED KLS'.

These corrections alter the checksum of the template. This is identified and corrected by the checksum audit.

Operating parameters

Due to the Real Time impact of this program and the large amount of data being scanned, the template audit should be run during low traffic hours.

The template audit should not be aborted unless it is critically necessary. If it does become necessary to interrupt execution of the audit, be aware that the templates may be corrupted.

If a system initialization occurs during the template audit, the program is automatically aborted. It should be restarted as soon as possible after this occurs.

The audit printout only appears on the TTY that requested the template audit program run.

Template Audit cannot be run as a background task.

To confirm that extraneous templates have been removed and that all counts have been corrected to their proper value, re-run the audit program.

A datadump (LD 43) should be run after a template audit is executed.

Sample operation

The audit begins when the program (LD 1) is loaded. All templates are scanned in the following sequence, beginning with template one:

1 Single line telephones

2 Multi-line telephones

Following is an example of the system information which is generated during a Template Audit:

```
TEMPLATE AUDIT
STARTING PBX TEMPLATE SCAN
TEMPLATE 0001 USER COUNT LOW     CHECKSUM OK
TEMPLATE 0002 USER COUNT HIGH    CHECKSUM OK
TEMPLATE 0003 NO USERS FOUND
                  •
                  •
                  •
STARTING SLI TEMPLATE SCAN
TEMPLATE 0001 USER COUNT OK      CHECKSUM OK
                  •
                  •
                  •
TEMPLATE 0067 USER COUNT OK    CHECKSUM WRONG
TEMPLATE 0068 USER COUNT OK    CHECKSUM OK DUPLICATE
OF 0014
                  •
TEMPLATE 0082 USER COUNT OK      CHECKSUM OK
                  •
TEMPLATE 0120 USER COUNT OK
TEMPLATE AUDIT COMPLETE
```

Note: The report does not print out that template inconsistencies have been corrected.

LD 30: Network and Signaling Diagnostic

This program is used to maintain Network loops. It may be run in background, loaded during the daily routines or loaded manually to enter commands.

Program operation

When invoked automatically by the system, the program performs the following tests:

- network memory of each enabled network card
- continuity of the speech path to each PE shelf (for enabled loops only)
- signaling channel to each line or trunk card (on enabled loops only)
- signaling channel through each Integrated Services digital line card to each Digital telephone or data TN
- clock controllers are switched (if either DTI2 or PRI2 are used when LD 30 is run in midnight mode, clock controllers will not be switched)

For the Integrated Voice Messaging System (IVMS), the program does not test Automatic Call Distribution (ACD) positions when the positions belong to IVMS-DN groups.

Digital telephones that pass the signaling test have their date and time updated to match the system clock.

Any SL-1 telephone or card that fails the signaling test may be disabled by this program. Use LD 32 to re-enable them.

If two or more PE cards are disabled on a loop, an NWS101 message is printed without the associated NWS301 messages to indicate card failures. However, the shelves that failed are known from the NWS201 messages. Therefore, the state of the individual cards can be determined by manually retesting using the SHLF command.

If NWS301 indicates a failure of the Peripheral Buffer or Controller card, the message may not be correct. Therefore the card should be retested using the SHLF command.

This program does not test attendant consoles or Automatically Identified Outward Dialing (AIOD) trunks. Equipment which has been disabled due either to overload or manual request is not tested.

On Option 11C systems, a continuity test and signaling test on the XPE shelf is performed when LD 30 is invoked automatically.

How to use LD 30

When invoked manually on systems other than Option 11C, the Overlay may be used to:

- conduct a complete test, as when the program is invoked automatically, except for switching the clocks
- conduct a test on a specific PE shelf
- get the enable/disable status of network loops
- enable or disable network loops
- clear alarm indications and the maintenance display
- download peripheral software on superloops
- clear contents of the Controller maintenance display
- read contents of the Controller maintenance display

When invoked manually on an Option 11C system, the program may be used to:

- conduct a complete test, as when the program is invoked automatically, except for switching the clocks
- clear alarm indications and the maintenance display
- perform a signaling test on a specific card or unit
- perform a continuity test and signaling test on the Option 11C XPE shelf

Fiber Network Fabric

The Fiber Network Fabric Expansion extends and enhances the 5-group network architecture to 8 non-blocking (inter-group) Network groups, with a resulting expansion in network capacity to 8k timeslots available for Intergroup traffic. This is achieved by using OC-12 SONET rings, and adding additional network and PE shelves, cards and cables and software changes to allow using the expanded network capacity. This expansion increases the number of available loops from 160 to 256. This applies to the Option 81C only.

Basic commands

The following commands are applicable to all machines, except Option 11C systems. See the list of Option 11C commands for further information.

CDSP	Clear the maintenance display on active CPU to 00 or blank
CMAJ	Clear major alarm and reset power fail transfer
CMIN c	Clear minor alarm indication on attendant consoles for customer c
CMIN ALL	Clear minor alarm indication on all attendant consoles
DISL loop	Disable loop
DISL sl	Disable specified superloop.
END	Abort current test
ENLL loop	Enable network loop
ENLL sl	Enable specified superloop.
LDIS	List disabled loops
LENL	List enabled loops
LOOP loop, ALL	Test network memory on one or all loops
SHLF l s	Test loop l, shelf s
STAT	Get status of all network loops
STAT loop	Get status of specified loops
TTSM loop x y z	Test Time Switch Memory (TSM) of a loop
TTWI A B X Y	Test the Time Switch Memory (TSM) of the network card
TTWI loop x y z	Test TSM when the timeslot junctor is idle

Option 11C commands

The following commands are applicable to Option 11C systems:

CDSP	Clear the maintenance display on active CPU to 00 or blank
CMAJ	Clear major alarm and reset power fail transfer
CMIN c	Clear minor alarm indication on attendant consoles for customer c
CMIN ALL	Clear minor alarm indication on all attendant consoles
END	Abort current test
TEST	Perform a continuity test and signaling test on Option 11C XPE shelf
UNTT c (u)	Perform a signaling test on a specified card or unit

Superloop commands

The following commands are used with Controllers (NT8D01) and Network Cards (NT8D04 or NT8D18).

CPED l s	Clear contents of Controller maintenance display on loop l shelf s
DISL loop	Disable loop
END	Abort current test
ENLL loop (v)	Enable superloop, download peripheral software version v
LDIS	List disabled loops
LENL	List enabled loops
LOOP loop, ALL	Test network memory on one or all loops
RPED l s	Read contents of the Controller maintenance display
SHLF l s	Test loop l, shelf s
STAT	Get status of all network loops
STAT (loop)	Get status of specified loop
UNTT l s c (u)	Do a signaling test on specified card or unit

Basic Rate Interface (BRI) commands

The following commands are used with Multi-purpose ISDN Signal Processor (MISP), S/T-Interface Line (SILC), and U-Interface Line (UILC) cards.

SLFT l s c	Invoke self-test on ISDN BRI line card
SLFT l s c type	Selftest ISDN BRI line card. The card must be disabled. Response is: NWS637 selftest passed or NWS632 selftest failed. Where: l = loop, s = shelf, c = card, and type = self-test type (Long or Short)
STEI l s c u	Query the Terminal Endpoint Identifiers, and their corresponding USIDs This command queries the TEIs, and their corresponding USIDs on the specified DSL with an established D-channel data link layer with the MISP. Output looks like: MISP 111 TEI USID --- ---- nnn nnnn
SLFT loop type	Invoke self-test on MISP loop. Where: type = 1 (comprehensive test) or type = 2 (power on reset)
TEIT l s c u	Perform TEI check on Digital Subscriber Loop Where: • l = (0-255) Option 81C with Fiber Network Fabric • u = 0-7

Option 11C BRI commands

SLFT card	Invoke self-test on ISDN BRI line card.
SLFT card type	Invoke self-test on MISP card. Where: type = 1 (comprehensive test) or type = 2 (power on reset)
TEIT c u	Perform TEI check on Digital Subscriber Loop Where: • u = 0-7

Alphabetical list of commands

Command	Description	Pack/Rel
CDSP	Clear the maintenance display on active CPU to 00 or blank.	basic-1
CMAJ	Clear major alarm, reset power fail transfer and clear power fault alarm.	basic-1
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
CMIN c	Clear minor alarm indication on attendant consoles for customer c.	basic-1
CPED l s	Clear contents of Controller maintenance display on loop l shelf s Where: • l = 0-252 and must be a superloop (multiple of 4), Option 81C with Fiber Network Fabric This also clears the buffer printed with the command RPED.	xpe-15 fnf-25
DISL loop	Disable loop. All calls in progress on this loop are disconnected. Peripheral cards remain software enabled and no LEDs are lit.	basic-1
DISL sl	Disable specified superloop. Active calls on the superloop specified will be disconnected and line transfer will occur at the remote end.	basic-21
END	Abort current test. If no test is in progress, message NWS002 is output.	basic-1
ENLL loop	Enable network loop. This enables the network, performs a network memory test and tests continuity and signaling to all shelves on the loop. If it passes the test, OK is output. This does not re-enable any disabled cards on the loop. Use LD 32 ENLS or ENXP commands or enable each card individually. When enabling a network loop serving ISDLC cards, the ISDLC cards must be individually disabled, then re-enabled to ensure that service is restored to digital telephones. Service may also be restored to digital telephones by disconnecting and then reconnecting the telephone's line cord.	basic-1

ENLL loop (v)	Enable superloop, download peripheral software version v. If version v is not specified, the software downloaded is current (c) or latest (l) version as defined in LD 97.	xpe-15
ENLL sl	Enable specified superloop. OK is output if superloop has been enabled. Establishing service of individual voice-and-data-capable carriers is dependant on the F/W state of that carrier.	basic-21
LDIS	List disabled loops Where: • loop = 0-255, Option 81C with Fiber Network Fabric Response is: • `l1, l2, ln`: loop is a disabled loop, or • `NONE`: if no cards are disabled	basic-1 fnf-25
LENL	List enabled loops Where: • loop = 0-255, Option 81C with Fiber Network Fabric Response is: • `l1, l2, ln`: l is an enabled loop, or • `NONE`: if no cards are enabled	basic-1 fnf-25
LOOP loop, ALL	Performs a network memory test, continuity test and signaling test on all XOPS cards on specified loop. If ALL is specified, every loop currently enabled is tested. . If no errors are detected, OK is output. Where: • loop = 0-159 • loop = 0-255, Option 81C with Fiber Network Fabric Out-of-Service units are not tested when this command is used.	basic- 20 fnf-25

RPED l s	Read contents of the Controller maintenance display. This command lists the current and last 15 clock tracking states of the NT8D01 Controller. The tracking is indicated on the Controller maintenance display. The possible tracking modes are: C0 = Controller is tracking to the network connected to port 0. C1 = Controller is tracking to the network connected to port 1. C2 = Controller is tracking to the network connected to port 2. C3 = Controller is tracking to the network connected to port 3. CF = Controller is not tracking any network. See HEX messages for the interpretation of Controller maintenance display codes. • l = 0-252 and must be a superloop (multiple of 4), Option 81C with Fiber Network Fabric	xpe-15 fnf-25
SHLF l s	Test loop l, shelf s. Performs a network memory test, continuity test and signaling test only on loop l shelf s. All line cards, idle trunk cards (except AIOD trunks), XOPS cards and idle SL-1 telephones are tested. If no errors are detected, OK is output. Out-of-service units are not tested when this command is used. Performs a network memory test, continuity test and signalling test on loop 0-255 and shelf only for Option 81C with Fiber Network Fabric	basic- 20 fnf-25
SLFT card	Invoke self-test for ISDN BRI line card. The card must be disabled. Response is: NWS632 self-test failed or NWS637 self-test passed (Option 11C only)	bri-18
SLFT l s c	Invoke self-test for ISDN BRI line card. The card must be disabled.	bri-18
SLFT l s c type	Self-test ISDN BRI line card. The card must be disabled. Where: • l = 0-255 Option 81C with Fiber Network Fabric	rsc/bri-19 fnf-25

Response is:

NWS637 selftest passed, or NWS632 selftest failed, where:

- l = loop
- s = shelf
- c = card
- type = self-test type (Long or Short)

SLFT card type — bri-18

Invoke self-test for MISP card on Option 11C. The comprehensive test is run automatically when the MISP is enabled. The card must be disabled. Response is:

`NWS632 self-test failed`, or `NWS637 self-test passed`

type = 1 (comprehensive), or type = 2 (power-on-reset)

SLFT loop type — bri-18

Invoke self-test for MISP card.

Where:

- l = 0-255, Option 81C with Fiber Network Fabric — fnf-25

The comprehensive test is run automatically when the MISP is enabled. The card must be disabled. Response is:

`NWS632 self-test failed` or `NWS637 self-test passed`

- type = 1 (comprehensive), or
- type = 2 (power-on-reset)

STAT — basic-1

Gives status of network loops (circuits), indicating how many are enabled and how many are disabled.

Response is: `x ENBL, y DSBL`

STAT loop — Get status of a network loop. basic-1

Where:

- l = 0-255, Option 81C with Fiber Network Fabric fnf-25

Response is one of the following:

1. `UNEQ` = loop is unequipped.
2. `DSBL: RESPONDING` = loop is disabled and the Network card is responding. The loop may have been disabled because of:
   - **a** DISL command
   - **b** associated Peripheral Signaling (PS) card is disabled
   - **c** overload condition on associated loop. In this case an OVD message is output. An attempt to enable the loop may result in a recurrence of the overload.
3. `DSBL: NOT RESPONDING` = loop is disabled and the Network card is not responding. The card is missing, disabled by the faceplate switch or is faulty.
4. `x BUSY, y DSBL` = loop is enabled with x channels busy, y channels disabled.
5. `CTYF l1, l2...` = loop specified in the STAT command cannot receive speech from one or more loops (l1, l2). This usually indicates the LD 30 continuity test failed. Probable fault is the network card.

STEI l s c d — Query the Terminal Endpoint Identifiers, and their corresponding USIDs brsc-19

Where:

- l = 0-255, Option 81C with Fiber Network Fabric fnf-25

This command queries the TEIs, and their corresponding USIDs on the specified DSL with an established D-channel data link layer with the MISP. Output looks like:

```
MISP 111
      TEI    USID
      ---    ----
      nnn    nnnn
```

TEIT c u — Perform TEI check on Digital Subscriber Loop on Option 11C. bri-18

Where:

- u = 0-7

This test is carried out on a single specified DSL interface. It checks the existence of the defined TEIs and any possible duplication of TEIs. Duplicate TEIs are removed by the layer 2 task on the MISP.

TEIT l s c u — Perform TEI check on Digital Subscriber Loop bri-18

Where:

- l = 0-255, Option 81C with Fiber Network Fabric fnf-25
- u = 0-7

This test is carried out on a single specified DSL interface. It checks the existence of the defined TEIs and any possible duplication of TEIs. Duplicate TEIs are removed by the layer 2 task on the MISP.

TEST — Perform a continuity test and signaling test on Option 11C XPE shelf. basic-1

TTSM loop x y z — basic-1

Test Time Switch Memory (TSM) of a loop.
Tests the Time Switch Memory (TSM) of the network card.

Where:

loop = the network loop that may have a faulty TSM.

x = the network loop of the transmitting party.

y = the junctor used on the transmitting side of the call. Its value has a range of 0-7, unless the two loops are in the same group, in which case the junctor value to be entered is 15.

z = the timeslot used on the transmitting side of the call. Its value has a range of 2-31.

The values normally used in this command are the same values that appeared in the ERR3036 or ERR3037 message during call processing.

	For Option 81C with Fiber Network Fabric • loop = 0-255 • x = 0-255 • y = 2-30 • x = 0-31 of loop	fnf-25
TTWI A B X Y	Test the Time Switch Memory (TSM) of the network card from B to A when timeslot Y of junctor X becomes available Where: • A and B = 0-255 • Y = 2-30 • X = 0-31 of A.	fnf-25
TTWI loop x y z	Test TSM when the timeslot junctors are idle. The command is usually used if error message NWS800 is output in response to TTSM. Where: • loop = the network loop that may have a faulty TSM. • x = the loop ID (range 0-159) of the transmitting party. • y = the junctor used on the transmitting side of the call. Its value has a range of 0-7, unless the two loops are in the same group, in which case the junctor value to be entered is 15. • z = 2-31, the timeslot used on the transmitting side of the call. This command waits for the timeslot z and junctor y to become available and will then execute the command.	basic-1
	For Option 81C with Fiber Network Fabric Where: • loop = 0-255 • x = 0-255 • y = 2-30 • x = 0-31 of loop	fnf-25
UNTT c (u)	Do a signaling test on specified card or unit on Option 11C	xpe- 20

UNTT l s c (u)	Do a signaling test on specified XOPS card or unit. This command applies only to superloops. Where: • l = 0-255, Option 81C with Fiber Network Fabric • u = 0-31, but only 0-7 are allowed on the XOPS card Out-of-service units are not tested when this command is used.	xpe- 20 fnf-25

LD 31: Telephone and Attendant Console Diagnostic

This program tests the keys and lamps of telephone sets and attendant consoles. The tests consist of pressing keys on a telephone and checking for the correct response. This diagnostic cannot be used for testing the DISPLAYPHONE 1200, or M3000.

After loading the program, any telephone in the system may invoke the test by dialing SPRE 92, (SPRE is the Special Service Prefix Code for the customer). No further inputs from the TTY are needed. If commands are input, the system responds with TRM001 indicating an invalid command.

To start the test:

1 Load program 31.

2 Dial SPRE 92 from the telephone to be tested.

3 Perform the steps given in the appropriate Table. The expected responses for LCD lamps, displays and tones are given. Each key need only be operated momentarily.

The volume keys (VOL UP and VOL DOWN) have eight levels. The level is adjusted by operating a key once for a change in one level. These keys control the audible level for ring volume, buzz volume and speech/tone volume.

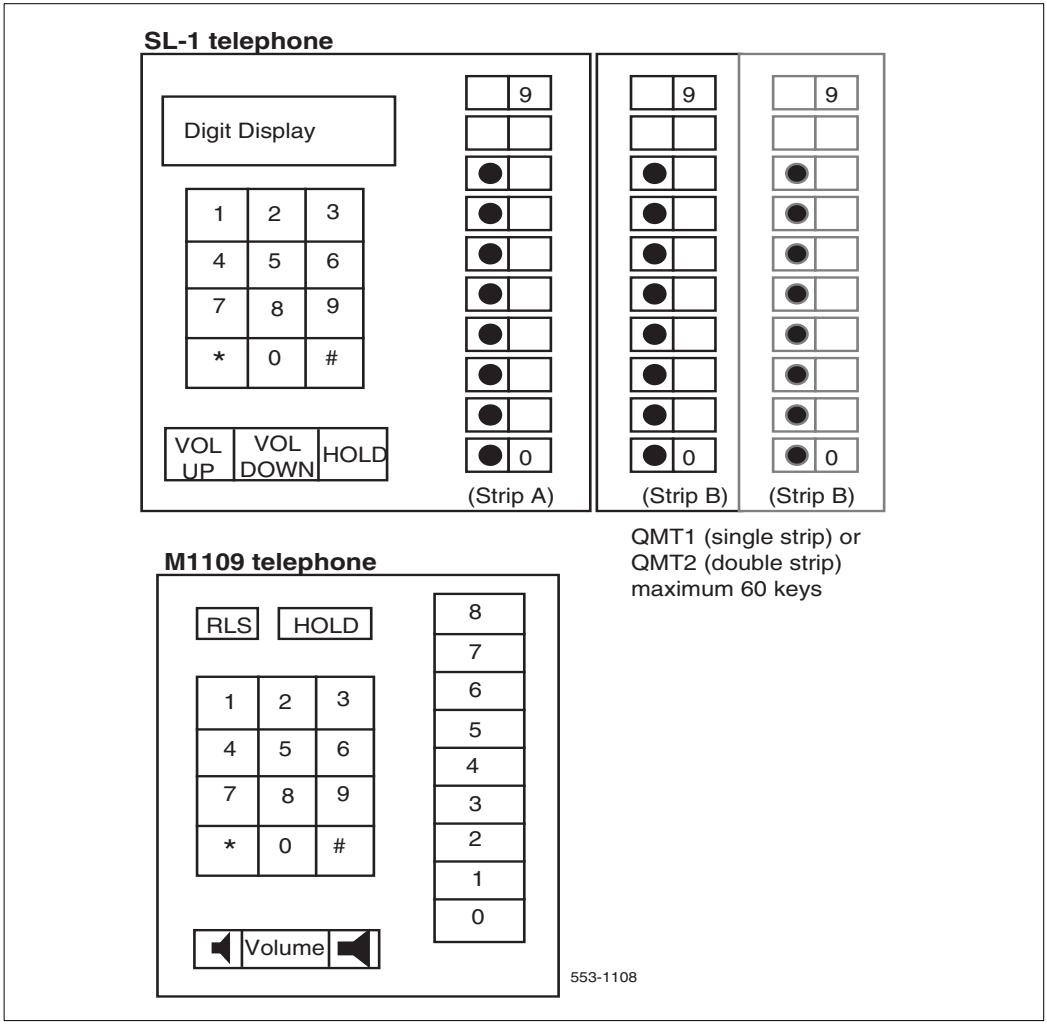
Note 1: When enabling a network loop with ISDLC cards, the ISDLC cards must be individually disabled and then re-enabled to restore service to digital telephones. Service may also be restored to digital telephones by disconnecting then reconnecting the telephone's line cord.

Note 2: Terminal diagnostics are provided by the M3000 itself. Refer to Meridian M3000 Description, Installation, Operation & Maintenance (553-2201-115).

SL-1 and M1109 Telephone test

The SL-1 and M1109 key and lamp layout is shown in Figure 2. The test is provided in Table 3.

Figure 2
SL-1 and M1109 Key and Lamp Layout



SL-1 and M1109 Telephone test

After dialing the SPRE code 92 the SL-1 telephone shows all LEDs lit and the display shows all 8's. For the M1109 press the "*" key first.

Note 1: If a lamp field array module exists on an SL-1 telephone, the following responses are included: * Key — All lamps on, # Key— All lamps off, Strip A Key 0 — Diagonal test pattern. (85).

Note 2: Response shown is for a 16-digit display. For an 8-digit display, only the last eight characters of each response are shown.

Table 3
SL-1 and M1109 Telephone test

Step	Key operated	LCD location and response	Display and Tones
1	Handset off-hook	All LEDs flash	blank display
2	Handset on-hook	All LEDs fast flash	blank display
3	Handset off-hook	All LEDs lit	8888888888888888
4	Handset on-hook	All LEDs off	blank display
5	Handset on-hook	All LEDs off	
6	Dial Pad key 1	LED A0 lit	1
7	Dial Pad key 2	LED A1 lit	12
8	Dial Pad key 3	LED A2 lit	123
9	Dial Pad key 4	LED A3 lit	1234
10	Dial Pad key 5	LED A4 lit	12345
11	Dial Pad key 6	LED A5 lit	123456
12	Dial Pad key 7	LED A6 lit	1234567
13	Dial Pad key 8	LED A7 lit	12345678
14	Dial Pad key 9	LEDs A0 & A7 lit	123456789
15	Dial Pad key 0	LEDs A1 & A7 lit	1234567890
16	Dial Pad key *	All LEDs lit	8888888888888888
17	Dial Pad key #	All LEDs off	blank display
18	Strip A key 0	LED A0 lit	
19	Strip A key 1	LED A1 lit	
20	Strip A key 2	LED A2 lit	
21	Strip A key 3	LED A3 lit	

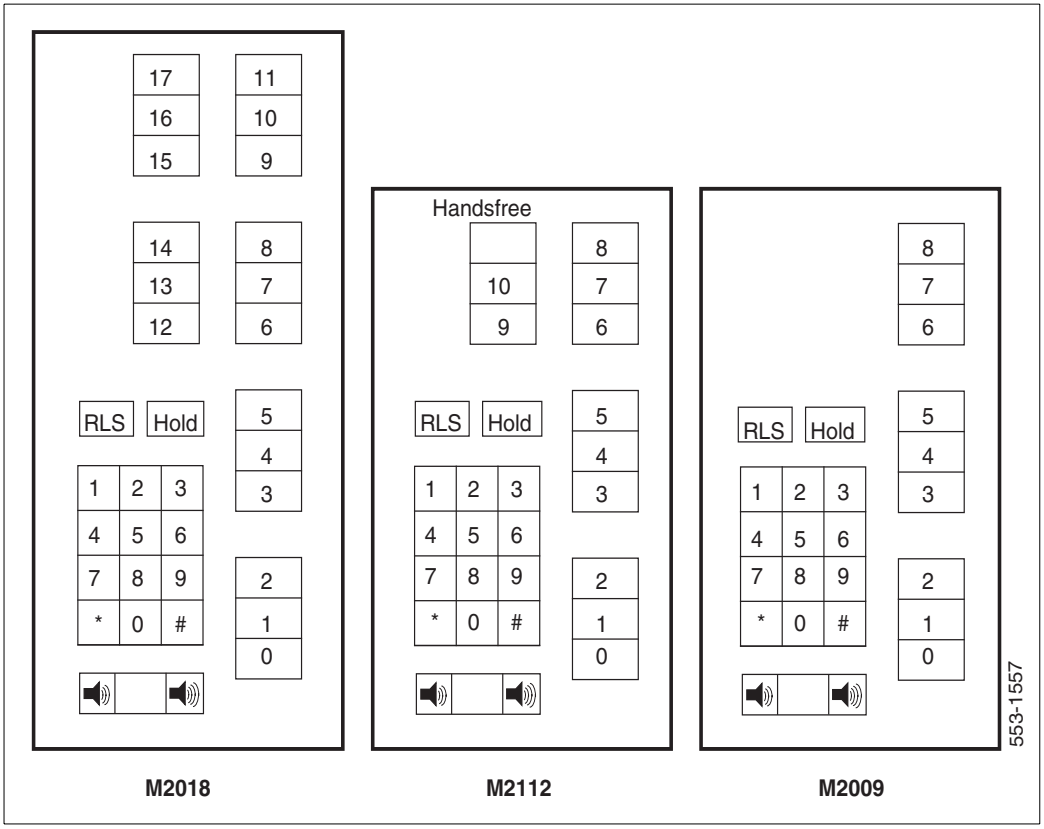
Table 3
SL-1 and M1109 Telephone test

Step	Key operated	LCD location and response	Display and Tones
22	Strip A key 4	LED A4 lit	
23	Strip A key 5	LED A5 lit	
24	Strip A key 6	LED A6 lit	
25	Strip A key 7	LED A7 lit	
26	Strip A key 8	LEDs A0 & A7 lit	
27	Strip A key 9 (SL-1)	LEDs A1 & A7 lit	
28	RLS key (M1109)	LEDs A1 & A7 lit	
29	Strip B key 0	LED B0 lit	
30	Strip B key 1	LED B1 lit	
31	Strip B key 2	LED B2 lit	
32	Strip B key 3	LED B3 lit	
33	Strip B key 4	LED B4 lit	
34	Strip B key 5	LED B5 lit	
35	Strip B key 6	LED B6 lit	
36	Strip B key 7	LED B7 lit	
37	Strip B key 8	LEDs B0 & B7 lit	
38	Strip B key 9	LEDs B1 & B7 lit	
Note: If 10-key or 20-key add-on modules are equipped, repeat steps 29 to 38 for each key/lamp strip on each module before proceeding.			
39	HLD key	LEDs, A0 to A4 lit	Dial tone
40	Handset off-hook	All LEDs flash	Dial tone from handset only
41	Handset on-hook	All LEDs fast flash	Dial tone from speaker
42	Vol Up key	LEDs A5 to A7 lit	Volume up
43	Vol Down key	LEDs A5 to A7 off	Volume down
44	HLD key	LEDs A0 to A4 lit	Buzzer
45	HLD key	End of test	

M2009, M2018 and M2112 Telephone test

The M2000 key and lamp layout is shown in Figure 3. The test is provided in Table 4.

Figure 3
M2000 Series Digital Telephone Key and LCD Layout



M2009, M2018, and M2112 Telephone test

After dialing the SPRE code 92, the M2009 telephone shows all LEDs lit and the display shows all 8's. For the M2018 and M2112, press the "*" key first.

Table 4
M2009, M2018, and M2112 Telephone test

Step	Key operated	LCD location and response	Display and Tones
1	Handset off-hook	All LCDs flash	blank display
2	Handset on-hook	All LCDs fast flash	blank display
3	Handset off-hook	All LCDs lit	blank display
4	Handset on-hook	All LCDs off	blank display
5	Dial Pad key 1	LCD 0 lit	1
6	Dial Pad key 2	LCD 1 lit	12
7	Dial Pad key 3	LCD 2 lit	123
8	Dial Pad key 4	LCD 3 lit	1234
9	Dial Pad key 5	LCD 4 lit	12345
10	Dial Pad key 6	LCD 5 lit	123456
11	Dial Pad key 7	LCD 6 lit	1234567
12	Dial Pad key 8	LCD 7 lit	12345678
13	Dial Pad key 9	LCDs 0 & 7 lit	123456789
14	Dial Pad key 0	LCDs 1 & 7 lit	1234567890
15	Dial Pad key *	All LCDs lit (except M2112)	8888888888888888
		LCD 6 lit (M2112)	
16	Dial Pad key #	All LCDs off (except M2112)	blank display
	Dial Pad key *	LCD 7 lit (M2112)?	
17	Fixed key 0	LCD 0 lit	
18	Fixed key 1	LCD 1 lit	
19	Fixed key 2	LCD 2 lit	
20	Fixed key 3	LCD 3 lit	
21	Fixed key 4	LCD 4 lit	

Table 4
M2009, M2018, and M2112 Telephone test

Step	Key operated	LCD location and response	Display and Tones
22	Fixed key 5	LCD 5 lit	
23	Fixed key 6	LCD 6 lit	
24	Fixed key 7	LCD 7 lit	
25	Fixed key 8	LCD 8 lit	
26	Fixed key 9	LCD 9 lit	
27	Fixed key 10	LCD 10 lit	
28	Fixed key 11	LCD 11 lit	
29	Fixed key 12	LCD 12 lit	
30	Fixed key 13	LCD 13 lit	
31	Fixed key 14	LCD 14 lit	
32	Fixed key 15	LCD 15 lit	
33	Fixed key 16	LCD 16 lit	
34	Fixed key 17	LCD 17 lit	
35	HLD key	LCDs 0 to 4 lit	Dial tone
36	Handset off-hook	all LCDs flash	Dial tone from handset only
37	Handset on-hook	all LCDs fast flash	Dial tone from speaker
38	Handsfree key	LCD 0 to 2 lit	

M2006 and M2008 Telephone test

The M2006 and M2008 faceplate is shown in Figure 4. The M2006 test is provided in Table 5. The M2008 test is provided in Table 6.

Figure 4
Meridian M2006 and M2008 set

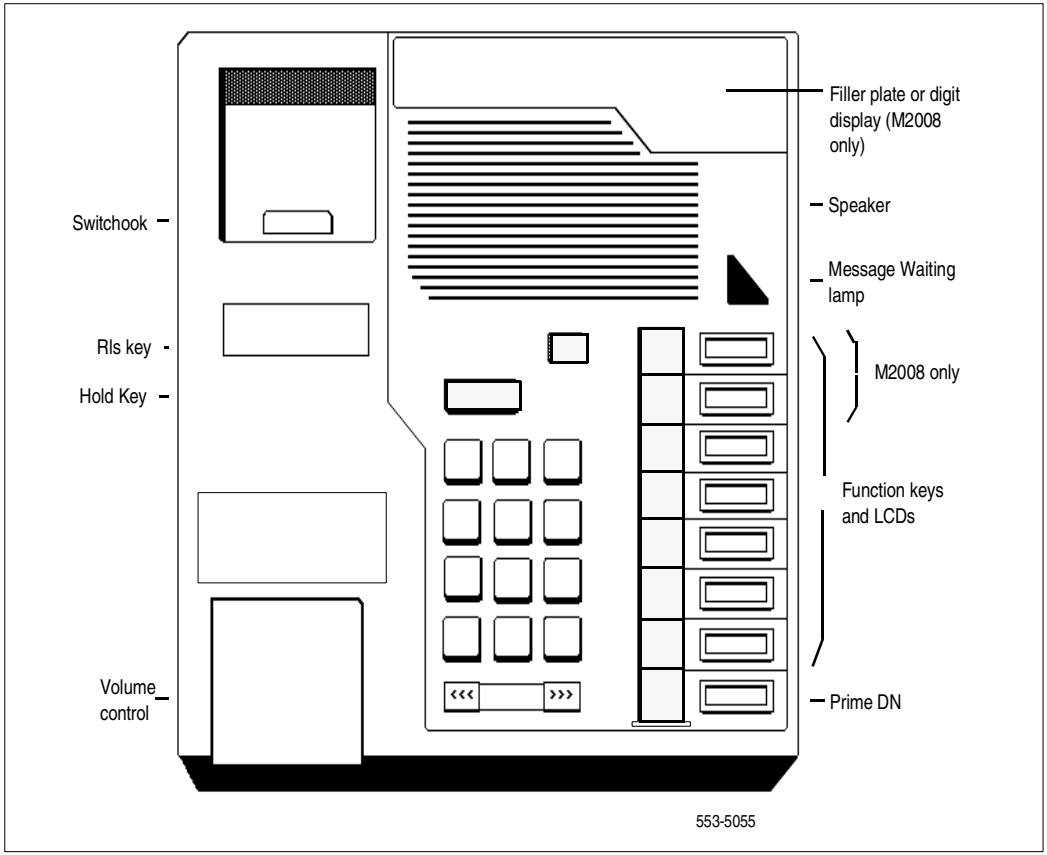


Table 5
Meridian M2006 Telephone test

Step	Key operated	LCD location and response	Display and Tones
	Feature keys:		
1	Key 0	LCD 0 lit	
2	Key 1	LCD 1 lit	
3	Key 2	LCD 2 lit	
4	Key 3	LCD 3 lit	turn on Message Waiting LED
5	Key 4	LCD 4 lit	turn off Message Waiting LED
6	Key 5	LCD 5 lit, (if key 5 is not a Program key for data option)	
	Keypad keys:		
7	Key 1	LCD 0 lit	
8	Key 2	LCD 1 lit	
9	Key 3	LCD 2 lit	
10	Key 4	LCD 3 lit	
11	Key 5	LCD 4 lit	
12	Key 6	LCD 0 and 4 lit	
13	Key 7	LCD 1 and 4 lit	
14	Key 8	LCD 2 and 4 lit	
15	Key 9	LCD 3 and 4 lit	
16	Key 0	LCD 1 and 4 lit	
17	Key *	all LCDs lit	
18	Key #	all LCDs off	
	Fixed keys:		
19	HLD	LCD 0 to 4 lit	dial tone
20	Release	all LCDs off	
21	Off-hook	all LCDs flash	dial tone from handset only
22	On-hook	all LCDs fast flash	dial tone form speaker

Table 5
Meridian M2006 Telephone test

Step	Key operated	LCD location and response	Display and Tones
23	Off-hook	all LCDs lit	
24	On-hook	all LCDs off	
25	HLD	LCD 0 to 4 lit	buzzer
26	HLD	end of test	

Table 6
Meridian M2008 Telephone test

Step	Key operated	LCD location and response	Display and Tones
	Feature keys:		
1	Key 0	LCD 0 lit	display upper case letters
2	Key 1	LCD 1 lit	display lower case letters
3	Key 2	LCD 2 lit	display clear
4	Key 3	LCD 3 lit	display darkens
5	Key 4	LCD 4 lit	top line of display darkens
6	Key 5	LCD 5 lit	turn Message Waiting LED on
7	Key 6	LCD 6 lit	turn Message Waiting LED off
8	Key 7	LCD 7 lit	
	Keypad keys:		
9	Key 1	LCD 0 lit	1 on display
10	Key 2	LCD 1 lit	2 on display
11	Key 3	LCD 2 lit	3 on display
12	Key 4	LCD 3 lit	4 on display
13	Key 5	LCD 4 lit	5 on display
14	Key 6	LCD 5 lit	6 on display
15	Key 7	LCD 6 lit	7 on display
16	Key 8	LCD 0 and 6 lit	8 on display
17	Key 9	LCD 1 and 6 lit	9 on display
18	Key 0	LCD 2 and 6 lit	0 on display
19	Key *	all LCDs lit	bottom line of display darkens
20	Key #	all LCDs off	display clear
	Fixed keys:		
21	HLD	LCD 0 to 4 lit	
22	Release	all LCDs off	display clear

Table 6
Meridian M2008 Telephone test

Step	Key operated	LCD location and response	Display and Tones
23	Off-hook	all LCDs flash	dial tone from handset only
24	On-hook	all LCDs fast flash	dial tone form speaker
25	Off-hook	all LCDs lit	display darkens
26	On-hook	all LCDs off	display clear
27	HLD	LCD 0 to 4 lit	buzzer
28	HLD	end of test	

M2216, M2016S and M2616 Telephone test

The set faceplate is shown in Figure 5. The M2216 test is provided in Table 7. The M2016S and M2616 set test is provided in Table 8.

Figure 5
M2216, M2016S and M2616 set

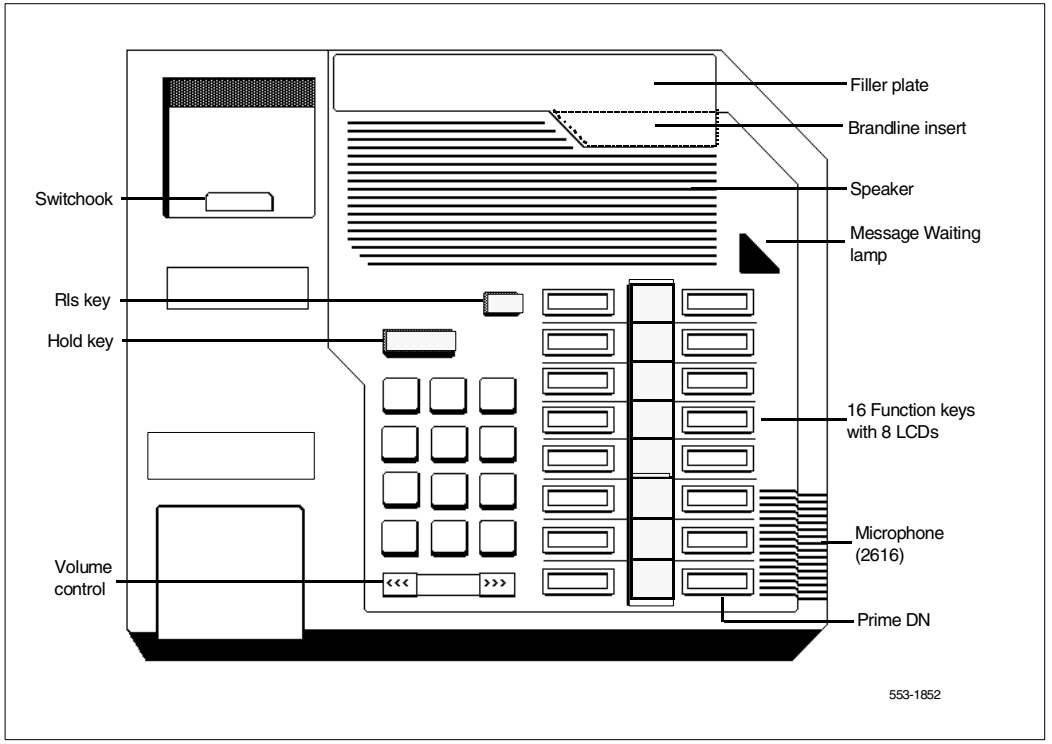


Table 7
M2216 Telephone test

Step	Key operated	LCD location and response	Display and Tones
Note: Do not test key 7			
	Feature keys:		
1	Key 0	LCD 0 lit	display upper case letters
2	Key 1	LCD 1 lit	display lower case letters
3	Key 2	LCD 2 lit	display clear
4	Key 3	LCD 3 lit	display darkens
5	Key 4	LCD 4 lit	top line of display darkens
6	Key 5	LCD 5 lit	turn Message Waiting LED on
7	Key 6	LCD 6 lit	turn Message Waiting LED off
8	Key n>7	LCD n lit	
	Keypad keys:		
9	Key 1	LCD 0 lit	1 on display
10	Key 2	LCD 1 lit	2 on display
11	Key 3	LCD 2 lit	3 on display
12	Key 4	LCD 3 lit	4 on display
13	Key 5	LCD 4 lit	5 on display
14	Key 6	LCD 5 lit	6 on display
15	Key 7	LCD 6 lit	7 on display
16	Key 8	LCD 0 and 6 lit	78 on display
17	Key 9	LCD 1 and 6 lit	9 on display
18	Key 0	LCD 2 and 6 lit	0 on display
19	Key *	all LCDs lit	bottom line of display darkens
20	Key #	all LCDs off	display clear
	Fixed keys:		
21	HLD	LCD 0 to 4 lit	dial tone
22	HLD	LCD 0 to 4 lit	buzzer
23	HLD	end of test	

Table 8
M2016S and M2616 Telephone test

Step	Key operated	LCD location and response	Display and Tones
Note: Do not test key 7			
	Feature keys:		
1	Key 0	LCD 0 lit	display upper case letters
2	Key 1	LCD 1 lit	display lower case letters
3	Key 2	LCD 2 lit	display clear
4	Key 3	LCD 3 lit	display darkens
5	Key 4	LCD 4 lit	top line of display darkens
6	Key 5	LCD 5 lit	turn Message Waiting LED on
7	Key 6	LCD 6 lit	turn Message Waiting LED off
8	Key n>7	LCD n lit	
	Keypad keys:		
9	Key 1	LCD 0 lit	1 on display
10	Key 2	LCD 1 lit	2 on display
11	Key 3	LCD 2 lit	3 on display
12	Key 4	LCD 3 lit	4 on display
13	Key 5	LCD 4 lit	5 on display
14	Key 6	LCD 5 lit	6 on display
15	Key 7	LCD 6 lit	7 on display
16	Key 8	LCD 0 and 6 lit	8 on display
17	Key 9	LCD 1 and 6 lit	9 on display
18	Key 0	LCD 2 and 6 lit	0 on display
19	Key *	all LCDs lit	top line of display darkens
20	Key #	all LCDs off	display clear
	Fixed keys:		
21	Handsfree	LCD 15 lit (with no display) LCD 0-2 lit (with display)	
22	Release	all LCDs off	

Table 8
M2016S and M2616 Telephone test

Step	Key operated	LCD location and response	Display and Tones
23	HLD	LCD 0 to 4 lit	dial tone from speaker
24	Off-hook	all LCDs flash	dial tone from handset
25	On-hook	all LCDs fast flash	dial tone from speaker
26	Off-hook	all LCDs lit	display darkens
27	On-hook	all LCDs off	display clear
28	HLD	LCD 0 to 4 lit	buzzer
29	HLD	end of test	

M2317 Telephone test

The key and LCD layout is shown in Figure 6. The test is provided in Table 9.

Figure 6
M2317 Series Telephone Key and LCD Layout

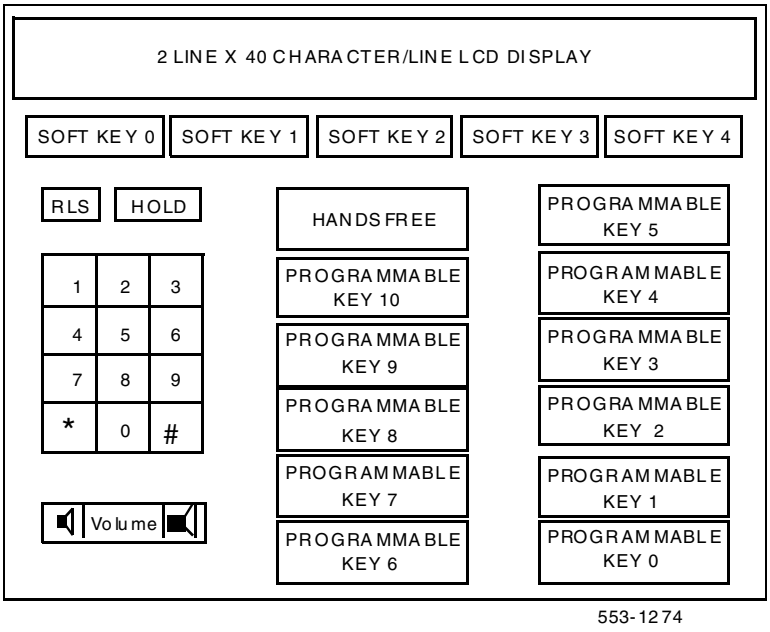


Table 9
M2317 Telephone test

Step	Key operated	LCD location & response	Display and Tones
1	Press *	All LCD are lit	Blank
2	Off-hook	All LCDs flash (except Key 11)	192
3	On-hook	All LCDs fast flash (except Key 11)	192
4	Off-hook	All LCDs lit	All 80 character elements (40 characters **x** 2 lines) are fully lit. Each character element is made up of 35 dots in a 5 **x** 7 dot array.
5	On-hook	All LCDs off	All 80 character elements are off
	Dial Pad Keys:		
6	Key 1	LCD 0 lit	1
7	Key 2	LCD 1 lit	12
8	Key 3	LCD 2 lit	123
9	Key 4	LCD 3 lit	1234
10	Key 5	LCD 4 lit	12345
11	Key 6	LCD 5 lit	123456
12	Key 7	LCD 6 lit	1234567
13	Key 8	LCD 7 lit	12345678
14	Key 9	LCDs 0 & 7 lit	123456789
15	Key 0	LCDs 1 & 7 lit	1234567890
16	Key 1	LCD 0 lit	12345678901
17	Key 2	LCD 1 lit	123456789012
18	Key 3	LCD 2 lit	1234567890123
19	Key 4	LCD 3 lit	12345678901234
20	Key 5	LCD 4 lit	123456789012345
21	Key 6	LCD 5 lit	1234567890123456
22	Key 7	LCD 6 lit	12345678901234567

Table 9
M2317 Telephone test

Step	Key operated	LCD location & response	Display and Tones
23	Key 8	LCD 7 lit	123456789012345678
24	Key 9	LCDs 0 & 7 lit	1234567890123456789
25	Key 0	LCDs 1 & 7 lit	12345678901234567890
26	Key 1	LCD 0 lit	12345678901234567890 1
27	Key 2	LCD 1 lit	12345678901234567890 12
28	Key 3	LCD 2 lit	12345678901234567890 123
29	Key 4	LCD 3 lit	12345678901234567890 1234
30	Key 5	LCD 4 lit	12345678901234567890 12345
31	Key 6	LCD 5 lit	12345678901234567890 123456
32	Key 7	LCD 6 lit	12345678901234567890 1234567
33	Key 8	LCD 7 lit	12345678901234567890 12345678
34	Key 9	LCDs 0 & 7 lit	12345678901234567890 123456789
35	Key 0	LCDs 1 & 7 lit	12345678901234567890 1234567890
36	Key 1	LCD 0 lit	12345678901234567890 12345678901234567890 1
37	Key 2	LCD 1 lit	12345678901234567890 12345678901234567890 12
38	Key 3	LCD 2 lit	12345678901234567890 12345678901234567890 123
39	Key 4	LCD 3 lit	12345678901234567890 12345678901234567890 1234

Table 9
M2317 Telephone test

Step	Key operated	LCD location & response	Display and Tones
40	Key 5	LCD 4 lit	12345678901234567890 12345678901234567890 12345
41	Key 6	LCD 5 lit	12345678901234567890 12345678901234567890 123456
42	Key 7	LCD 6 lit	12345678901234567890 12345678901234567890 1234567
43	Key 8	LCD 7 lit	12345678901234567890 12345678901234567890 12345678
44	Key 9	LCDs 0 & 7 lit	12345678901234567890 12345678901234567890 123456789
45	Key 0	LCDs 1 & 7 lit	12345678901234567890 12345678901234567890 1234567890
46	Key *	All LCD lit (except Key 11)	88888888888888888888 88888888888888888888
47	Key #	All LCD go off	Display clears
	Programmable Keys:		
48	Key 0	LCD 0 lit	Blank
49	Key 1	LCD 1 lit	Blank
50	Key 2	LCD 2 lit	Blank
51	Key 3	LCD 3 lit	Blank
52	Key 4	LCD 4 lit	Blank
53	Key 5	LCD 5 lit	Blank
54	Key 6	LCD 6 lit	Blank
55	Key 7	LCD 7 lit	Blank
56	Key 8	LCD 8 lit	Blank

Table 9
M2317 Telephone test

Step	Key operated	LCD location & response	Display and Tones
57	Key 9	LCD 9 lit	Blank
58	Key 10	LCD 10 lit	Blank
	Soft Keys:		
59	Key 0	LCD 0 flashes 60 ipm	ABCDEFGHIJKLMNOPQ RSTUVWXYZABCDEFGH
60	Key 1	LCD 1 flashes 60 ipm	Display clears
61	Key 2	LCD 2 flashes 60 ipm	abcdefghijklmnopqrst uvwxyzabcdefghijklmn
62	Key 3	LCD 3 flashes 60 ipm	Display clears
63	Key 4	LCD 4 flashes 60 ipm	Display clears
64	Press HOLD key	LCD 0 to 4 light steadily (Key 11 lit)	Dial tone heard through speaker
65	Handset off-hook	All LCD flash at 60 ipm (Key 11 off)	Dial tone heard through handset
66	Handset on-hook	All LCD fast flash at 120 ipm (Key 11 on)	Dial tone heard through speaker
67	Press HANDSFREE key	LCD 0 to 2 light steadily	
68	Press RELEASE key	All LCD go off	
69	Press HOLD key	LCD 0 to 4 light steadily	Buzz heard through speaker
70	Press HOLD key	End of test	

QCW-type Attendant Console test

This is the procedure for testing the basic Attendant Console used with most Meridian systems. Start these tests with the headset/handset plugged in. Tones, except for Buzz, are heard from the headset/handset.

Figure 7 show the optional lamp field array. Table 10, "QCW-type Attendant Console test," on page 87. Figure 7 shows the layout of the keys and LEDs on a console.

Figure 7
Lamp Field Array Response

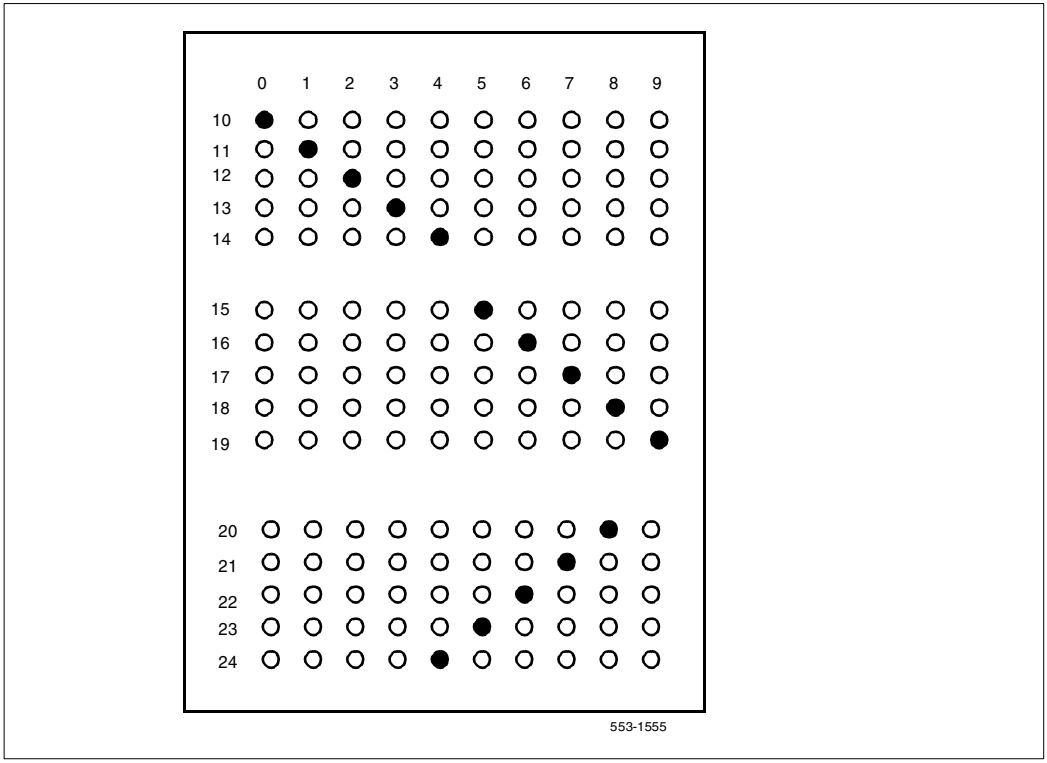
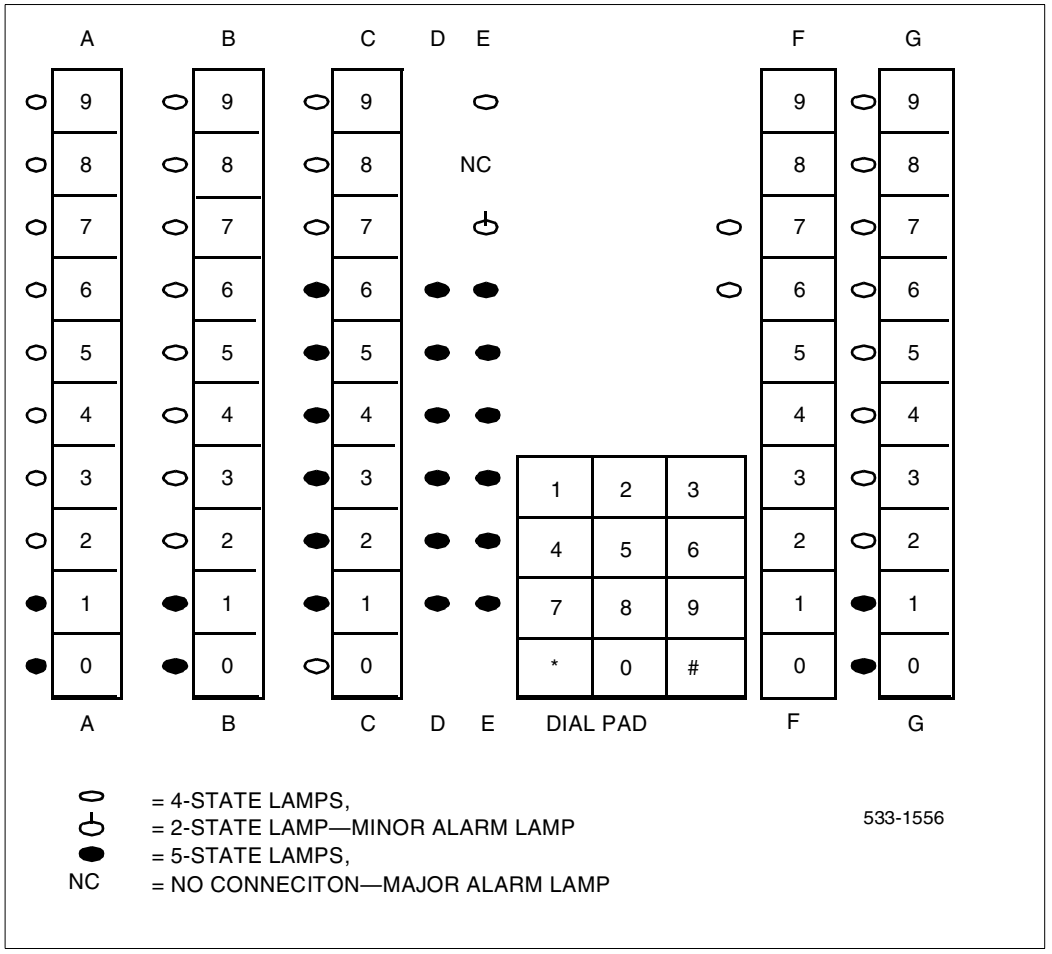


Figure 8
SL-1 Console Key and LED Layout



QCW-type Attendant Console test

Note 1: If the console has a 16-digit display, test all digits by repeating the dial pad sequence. On 8-digit display consoles, only the last 8 digits are shown.

Note 2: This is the test of the conference circuit. EXCL DEST controls the DESTINATION port, EXCL SRC controls the SOURCE ports and RLS the ATTENDANT port. Each key activation reverses the enable/disable status of the port.

Table 10
QCW-type Attendant Console test

Step	Key operated	LCD location & response	Display and Tones
1	Select an idle loop key on the Console to be tested.		
2	Enter SPRE 92	All lit (except F0-5, 8-9, D0, 7-9 and E0)	All field array LEDs are lit
3	Dial Pad Key #	All unlit	Display is blank, all lamp field array LEDs are off
4	Dial Pad Key 1	D1 lit	1
5	Dial Pad Key 2	E1 lit	12
6	Dial Pad Key 3	D2 lit	123
7	Dial Pad Key 4	E2 lit	1234
8	Dial Pad Key 5	D3 lit	12345
9	Dial Pad Key 6	E3 lit	123456
10	Dial Pad Key 7	D4 lit	1234567
11	Dial Pad Key 8	E4 lit	12345678
12	Dial Pad Key 9	D5 lit	123456789
13	Dial Pad Key 0	E5 lit	1234567890 ***(See Note 1)***
14	Dial Pad Key *	All lit (except F0-5, 8-9, D0, 7-9 and E0)	8888888888888888 All field array LEDs are lit
15	Dial Pad Key #	all unlit	Blank, all lamp field array LEDs are off
16	Strip A key 0	A0 lit	
17	Strip A key 1	A1 lit	

Table 10
QCW-type Attendant Console test

Step	Key operated	LCD location & response	Display and Tones
18	Strip A key 2	A2 lit	
19	Strip A key 3	A3 lit	
20	Strip A key 4	A4 lit	
21	Strip A key 5	A5 lit	
22	Strip A key 6	A6 lit	
23	Strip A key 7	A7 lit	
24	Strip A key 8	A8 lit	
25	Strip A key 9	A9 lit	
26	Strip B key 0	B0 lit	
27	Strip B key 1	B1 lit	
28	Strip B key 2	B2 lit	
29	Strip B key 3	B3 lit	
30	Strip B key 4	B4 lit	
31	Strip B key 5	B5 lit	
32	Strip B key 6	B6 lit	
33	Strip B key 7	B7 lit	
34	Strip B key 8	B8 lit	
35	Strip B key 9	B9 lit	
36	Strip C key 0	C0 lit	
37	Strip C key 1	C1 lit	
38	Strip C key 2	C2 lit	
39	Strip C key 3	C3 lit	
40	Strip C key 4	C4 lit	
41	Strip C key 5	C5 lit	
42	Strip C key 6	C6 lit	
43	Strip C key 7	C7 lit	
44	Strip C key 8	C8 lit	

Table 10
QCW-type Attendant Console test

Step	Key operated	LCD location & response	Display and Tones
45	Strip C key 9	C9 lit	
46	Strip G key 0	G0 lit	Lamp field array displays a diagonal pattern as shown in Figure 7
47	Strip G key 1	G1 lit	All field array LEDs are off
48	Strip G key 2	G2 lit	
49	Strip G key 3	G3 lit	
50	Strip G key 4	G4 lit	
51	Strip G key 5	G5 lit	
52	Strip G key 6	G6 lit	
53	Strip G key 7	G7 lit	
54	Strip G key 8	G8 lit	
55	Strip G key 9	G9 lit	

Note: If console is equipped with 10- or 20-button modules, proceed to Step 56. If not, go to Step 66.

56	Strip H key 0	H0 lit	
57	Strip H key 1	H1 lit	
58	Strip H key 2	H2 lit	
59	Strip H key 3	H3 lit	
60	Strip H key 4	H4 lit	
61	Strip H key 5	H5 lit	
62	Strip H key 6	H6 lit	
63	Strip H key 7	H7 lit	
64	Strip H key 8	H0 and H7 lit	
65	Strip H key 9	H1 and H7 lit	

Note: Test all remaining key strips in a similar manner to H before testing strip F. H7 remains lit for strip I test.

66	Strip F key 0	B0 to B4 lit. H7 and I7 lit.	Busy tone

Table 10
QCW-type Attendant Console test

Step	Key operated	LCD location & response	Display and Tones
67	Strip F key 1	All lit (except D0, 7-9, E8, F0-5, F8-9)	8888888888888888
68	Strip F key 1	All Fast Flash at 120 ipm (except D0, 7-9, E8, F0-5, F8-9)	Blank
69	Strip F key 1	All Flash at 60 ipm (except D0, 7-9, E8, F0-5, F8-9)	Blank
70	Strip F key 1	C1-6, D1-6, E1-6, and G0-1 Slow Flash at 30 ipm.	
71	Strip F key 2	All strip A lit	Blank
72	Strip F key 3	All strip B lit	
73	Strip F key 4	All off	
74	Strip F key 5 (***See Note 2***)	B0 to B4 lit	Busy tone and dial tone
75	Strip F key 6 (***See Note 2***)	B0 to B4 off	Dial tone only
76	Strip F key 5 (***See Note 2***)	B0 to B4 lit	No tone
77	Strip F key 6 (***See Note 2***)	B0 to B4 off	Busy tone only
78	Strip F key 7 (***See Note 2***)	B0 to B4 lit	No tone
79	Strip F key 7 (***See Note 2***)	B0 to B4 off	Busy tone
80	Handset out	B0 to B4 off	Speaker on (all keys disabled on QCW4E only)
81	Handset in	B0 to B4 lit	Speaker off, tone in handset receiver
82	Strip F key 0	B0 to B4 lit	Buzz in speaker
83	Strip F key 9	F7 lit	Volume up
84	Strip F key 8	F6 lit	Volume down
85	Strip F key 0	End of test	
86	Repeat test for all remaining consoles		

M1250 Console test

The M1250 and M2250 faceplate is shown in Figure 9. The tests are provided in the following tables:

Table 11 — M1250 console test
Table 12 — M1250 console test in QMT2 mode
Table 13 — M2250 console test

QMT2 mode for M1250 Console

When console is configured for the QMT2 mode, the two left most keystrips imitate add-on keystrips QMT2 of QCW-type consoles when in shift mode. For the M1250 console to operate in the QMT2 mode, Option IC2 must be assigned in the Customer Data Block (LD 15).

To place the M1250 into QMT2 mode:

1 Unplug the console from the wall jack.

2 Open the console faceplate and the set dip-switch on the top circuit card to ON. Refer to the NTP titled *Installation Procedures for Telephone Sets and Attendant Consoles* .

3 Replace the console faceplate.

4 Plug the console into the wall jack.

5 Put the M1250 console in an idle state, with handset or headset plugged in.

6 Press SHIFT to put the console into shift mode.

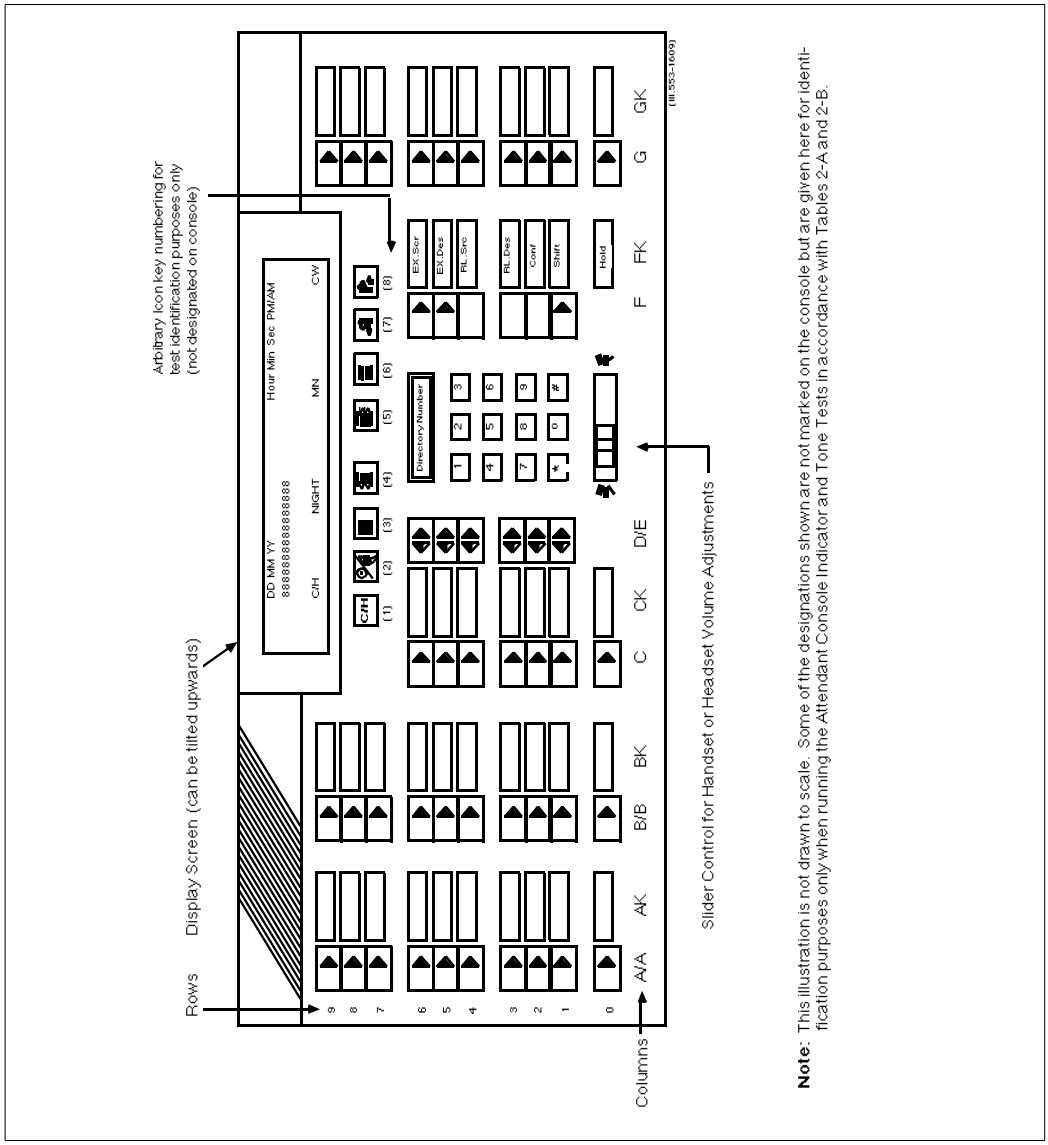
7 Enter diagnostics mode by pressing F6 function key.

8 From the diagnostics menu on the Liquid Crystal Display (LCD) screen, select the QMT2 option by keying in the number (3) from the dial pad, then check for ON confirmation on line 2 of the LCD screen.

9 Exit the diagnostics menu by pressing the octothorpe (#) key.

10 Return to the operating mode by pressing the # key again.

Figure 9
SL-1 M1250 and M2250 Console — Key and LCD Layout



Note: This illustration is not drawn to scale. Some of the designations shown are not marked on the console but are given here for identification purposes only when running the Attendant Console Indicator and Tone Tests in accordance with Tables 2-A and 2-B.

M1250 Console test

Note 1: Refer to Table 12 for M1250 test in the QMT2 mode.

Note 2: An "Active" LCD display shows the date and time on line 1, digits on line 2, and the word ACTIVE on line 4.

Note 3: Where "headset" is written, the word "handset" may be substituted.

Note 4: The volume keys for adjusting the speaker volume (alerting tones) have eight levels. Volume levels are adjusted by pressing the Volume Up key (Icon key 2 in Shift mode) or the Volume Down key (Icon key 3 in Shift mode) once for each change in level.

Table 11
M1250 Console test

Step	Key operated	LCD location and response	Display and Tones
1	Select an idle loop key on the M1250 Attendant Console to be tested.		
2	Enter SPRE 92	All LCD indicators are lit as illustrated in Figure 9.	Display screen appears as shown in Figure 9.
3	Press Key #	All LCD key indicators are blank	Active
Note: When lines 1 and 4 are Active, line 2 displays digits.			
4	Press Key 1	D1 lit	1
5	Press Key 2	E1 lit	12
6	Press Key 3	D2 lit	123
7	Press Key 4	E2 lit	1234
8	Press Key 5	D3 lit	12345
9	Press Key 6	E3 lit	123456
10	Press Key 7	D4 lit	1234567
11	Press Key 8	E4 lit	12345678
12	Press Key 9	D5 lit	123456789

Table 11
M1250 Console test

Step	Key operated	LCD location and response	Display and Tones
13	Press Key 0	E5 lit	1234567890
Note: Only 16 integers (maximum) are displayed, even though the display line has a total capacity of 40 characters. If steps 4 to 13 are repeated, line 2 displays the numbers 1 to 0 as shown here. The display appears where the field is filled with eights (8's) in Figure 9. After key 7 is pressed, one number is truncated off the right of the display for each number added on the left. Avoid this scrolling condition as it may disrupt the rest of the test.			
14	Press Key *	All LCD indicators are lit as illustrated in Figure 9, except FK0-4.	Display screen appears as shown in Figure 9.
15	Press Key #	All LCD key indicators are blank	Active
16	Press AK key 0	A0 blank	Active
17	Press AK key 1	A1 blank	Active
18	Press AK key 2	A2 blank	Active
19	Press AK key 3	A3 blank	Active
20	Press AK key 4	A4 blank	Active
21	Press AK key 5	A5 blank	Active
22	Press AK key 6	A6 blank	Active
23	Press AK key 7	A7 blank	Active
24	Press AK key 8	A8 blank	Active
25	Press AK key 9	A9 blank	Active
26	Press BK key 0	B0 lit	Active
27	Press BK key 1	B1 lit	Active
28	Press BK key 2	B2 lit	Active
29	Press BK key 3	B3 lit	Active
30	Press BK key 4	B4 lit	Active
31	Press BK key 5	B5 lit	Active
32	Press BK key 6	B6 lit	Active
33	Press BK key 7	B7 lit	Active

Table 11
M1250 Console test

Step	Key operated	LCD location and response	Display and Tones
34	Press BK key 8	B8 lit	Active
35	Press BK key 9	B9 lit	Active
36	Press CK key 0	C0 lit	Idle
37	Press CK key 1	C1 lit	Active
38	Press CK key 2	C2 lit	Active
39	Press CK key 3	C3 lit	Active
40	Press CK key 4	C4 lit	Active
41	Press CK key 5	C5 lit	Active
42	Press CK key 6	C6 lit	Active
43	Press Icon key (1)		C/H and Active
44	Press Icon key (2)		BUSY/NIGHT

Note: BUSY or NIGHT display is dependent on how many consoles are configured in the system, and the state of those consoles at the time of the test.

1. BUSY = Standard consoles are POS BUSY — M1250 is IDLE
2. NIGHT = all consoles are POS BUSY

45	Press FK key 1	F1 lit	BUSY/NIGHT
46	Press Icon key (2)	F1 lit	BUSY/NIGHT
47	Press FK key 1	F1 off	BUSY/NIGHT
48	Press GK key 0	G0 lit	Active
49	Press GK key 1	G1 lit	Active
50	Press GK key 2	G2 lit	Active
51	Press GK key 3	G3 lit	Active
52	Press GK key 4	G4 lit	Active
53	Press GK key 5	G5 lit	Active
54	Press GK key 6	G6 lit	Active
55	Press GK key 7	G7 lit	Active
56	Press GK key 8	G8 lit	Active

Table 11
M1250 Console test

Step	Key operated	LCD location and response	Display and Tones
57	Press GK key 9	G9 lit	Active
58	Press FK key 1	G9 and F1 lit	Active
59	Press AK key 0	A0 and F1 lit	Active
60	Press AK key 1	A1 and F1 lit	Active
61	Press AK key 2	A2 and F1 lit	Active
62	Press AK key 3	A3 and F1 lit	Active
63	Press AK key 4	A4 and F1 lit	Active
64	Press AK key 5	A5 and F1 lit	Active
65	Press AK key 6	A6 and F1 lit	Active
66	Press AK key 7	A7 and F1 lit	Active
67	Press AK key 8	A8 and F1 lit	Active
68	Press AK key 9	A9 and F1 lit	Active
69	Press BK key 0	B0 and F1 lit	Active
70	Press BK key 1	B1 and F1 lit	Active
71	Press BK key 2	B2 and F1 lit	Active
72	Press BK key 3	B3 and F1 lit	Active
73	Press BK key 4	B4 and F1 lit	Active
74	Press BK key 5	B5 and F1 lit	Active
75	Press BK key 6	B6 and F1 lit	Active
76	Press BK key 7	B7 and F1 lit	Active
77	Press BK key 8	B8 and F1 lit	Active
78	Press BK key 9	B9 and F1 lit	Active
79	Press FK key 0	B0-4, and F1 lit	Active
80	Press FK key 0		Active tone
81	Press FK key 0	C0 and F1 lit	BUSY/NIGHT

Table 11
M1250 Console test

Step	Key operated	LCD location and response	Display and Tones
Note: BUSY or NIGHT display is dependent on how many consoles are configured in the system, and the state of those consoles at the time of the test. 1. BUSY = Standard consoles are POS BUSY — M1250 is IDLE 2. NIGHT = all consoles are POS BUSY			
82	Press CK key 1	C1 and F1 lit	BUSY/NIGHT
83	Dial SPRE 92	As shown in Figure 9.	As shown in Figure 9.
84	Press key #	F1 lit while all other LCDs are blank.	Active
85	Press FK key 0	B0-4 and F1 lit	Active
86	Press FK key 1	F1 goes blank (B0-4 still lit)	Active
87	Press FK key 2	All LCDs are lit as in Figure 8, except F1.	Night
88	Press FK key 2	All LCDs Fast Flash at 120 ipm.	Fast Flash Active/Night
89	Press FK key 2	All LCDs Flash at 60 ipm.	Flash Active/Night
90	Press FK key 2	These LCDs are lit: C1-6, D/E1-6, G0-1 Slow Flash at 30 ipm.	
91	Press FK key 3	All of Key Strip A is lit	Active
92	Press FK key 4	All LCDs in strip B are lit	Active
93	Press Icon key (8)	All LCDs are blank	Active
94	Press Icon key (7)	B0-4 lit	Active
95	Press Strip FK key 5	B0-4 lit	Active
96	Press Icon key (7)	All LCDs are blank	Active
97	Press FK key 5	B0-4 are lit	Active
98	Press FK key 6	B0-4 lit	Active
99	Press FK key 6	B0-4 are blank	Active

Table 11
M1250 Console test

Step	Key operated	LCD location and response	Display and Tones
100	Remove the headset jack (unplug the headset)	All LCDs are blank	Active
101	Replace the headset jack (plug-in the headset)	B0-4 lit	Active
102	Press FK key 0	B0-4 lit	Buzz tone to the Attendant display is active
103	Press FK key 0	C0 lit	BUSY/NIGHT
104	Press FK key 0	End of test	NIGHT

M1250 Console test in QMT2 mode

Note 1: An "Active" LCD display shows the date and time on line 1, digits on line 2, and the word ACTIVE on line 4.

Note 2: Where "headset" is written, the word "handset" may be substituted.

Note 3: The volume keys for adjusting the speaker volume (alerting tones) have eight levels. Volume levels are adjusted by pressing the Volume Up key (Icon key 2 in Shift mode) or the Volume Down key (Icon key 3 in Shift mode) once for each change in level.

Note 4: Ensure console is not in shift mode when beginning test.

Table 12
M1250 Console test in QMT2 mode

Step	Key operated	LCD location and response	Display and Tones
Step	**Key operated**	**LCD location and response**	**Display and Tones**
1	Select an idle loop key on the M1250 console to be tested.		
2	Enter SPRE 92	All LCD indicators are lit as illustrated in Figure 9. AA and BB lit on both sides.	The display screen is activated and shows all alphanumerics as indicated in Figure 9.
3	Dial Pad Key #	All LCD indicators are blank.	Active
4	Dial Pad Key 1	D1 lit	1
5	Dial Pad Key 2	E1 lit	12
6	Dial Pad Key 3	D2 lit	123
7	Dial Pad Key 4	E2 lit	1234
8	Dial Pad Key 5	D3 lit	12345
9	Dial Pad Key 6	E3 lit	123456
10	Dial Pad Key 7	D4 lit	1234567
11	Dial Pad Key 8	E4 lit	12345678
12	Dial Pad Key 9	D5 lit	123456789

Table 12
M1250 Console test in QMT2 mode

Step	Key operated	LCD location and response	Display and Tones
13	Dial Pad Key 0	E5 lit	1234567890
Note: Only 16 integers (maximum) are displayed, even though the display line has a total capacity of 40 characters. If steps 4 to 13 are repeated line 2 displays the numbers 1 to 0 as shown here. The display appears where the field is filled with eights in Figure 9. After key 7 is pressed, one number is truncated off the right of the display for each number added on the left. Avoid this scrolling condition as it may disrupt the rest of the test.			
14	Dial Pad Key *	All LCD indicators are lit as illustrated in Figure 9.	Display screen is activated and displays alphanumerics as indicated in Figure 9.
15	Dial Pad Key #	All LCD indicators are blank	Active
16	Strip AK key 0	A0 lit	Active
17	Strip AK key 1	A1 lit	Active
18	Strip AK key 2	A2 lit	Active
19	Strip AK key 3	A3 lit	Active
20	Strip AK key 4	A4 lit	Active
21	Strip AK key 5	A5 lit	Active
22	Strip AK key 6	A6 lit	Active
23	Strip AK key 7	A7 lit	Active
24	Strip AK key 8	A8 lit	Active
25	Strip AK key 9	A9 lit	Active
26	Strip BK key 0	B0 lit	Active
27	Strip BK key 1	B1 lit	Active
28	Strip BK key 2	B2 lit	Active
29	Strip BK key 3	B3 lit	Active
30	Strip BK key 4	B4 lit	Active
31	Strip BK key 5	B5 lit	Active
32	Strip BK key 6	B6 lit	Active
33	Strip BK key 7	B7 lit	Active
34	Strip BK key 8	B8 lit	Active

Table 12
M1250 Console test in QMT2 mode

Step	Key operated	LCD location and response	Display and Tones
35	Strip BK key 9	B9 lit	Active
36	Strip CK key 0	C0 lit	Active
37	Strip CK key 1	C1 lit	Active
38	Strip CK key 2	C2 lit	Active
39	Strip CK key 3	C3 lit	Active
40	Strip CK key 4	C4 lit	Active
41	Strip CK key 5	C5 lit	Active
42	Strip CK key 6	C6 lit	Active
43	Icon key (1)	—	C/H and Active
44	Icon key (2)	—	BUSY
45	Strip FK key 1	F1 lit	BUSY
46	Icon key (2)	F1 lit	NIGHT
47	Strip FK key 1	—	NIGHT
48	Strip GK key 0	G0 lit	Active
49	Strip GK key 1	G1 lit	Active
50	Strip GK key 2	G2 lit	Active
51	Strip GK key 3	G3 lit	Active
52	Strip GK key 4	G4 lit	Active
53	Strip GK key 5	G5 lit	Active
54	Strip GK key 6	G6 lit	Active
55	Strip GK key 7	G7 lit	Active
56	Strip GK key 8	G8 lit	Active
57	Strip GK key 9	G9 lit	Active
58	Strip FK key 1	G9 and F1 lit	Active
59	Strip AK key 0	A0 and F1 lit	Active
60	Strip AK key 1	A1 and F1 lit	Active

Table 12
M1250 Console test in QMT2 mode

Step	Key operated	LCD location and response	Display and Tones
61	Strip AK key 2	A2 and F1 lit	Active
62	Strip AK key 3	A3 and F1 lit	Active
63	Strip AK key 4	A4 and F1 lit	Active
64	Strip AK key 5	A5 and F1 lit	Active
65	Strip AK key 6	A6 and F1 lit	Active
66	Strip AK key 7	A7 and F1 lit	Active
67	Strip AK key 8	A7, A0 and F1 lit	Active
68	Strip AK key 9	A7, A1 and F1 lit	Active
69	Strip BK key 0	A7, B0 and F1 lit	Active
70	Strip BK key 1	A7, B1 and F1 lit	Active
71	Strip BK key 2	A7, B2 and F1 lit	Active
72	Strip BK key 3	A7, B3 and F1 lit	Active
73	Strip BK key 4	A7, B4 and F1 lit	Active
74	Strip BK key 5	A7, B5 and F1 lit	Active
75	Strip BK key 6	A7, B6 and F1 lit	Active
76	Strip BK key 7	A7, B7 and F1 lit	Active
77	Strip BK key 8	A7, B7, B0 and F1 lit	Active
78	Strip BK key 9	A7, B0, B1 and F1 lit	Active
79	Strip FK key 0	A7, B7, B0 to B4 and F1 lit	Active and busy tone
80	Strip FK key 0	A7, B7, B0 to B4 and F1 lit	Active and tone from speaker
81	Strip FK key 0	C0 and F1 lit	NIGHT
82	Strip FK key 1	C0 lit	NIGHT
83	Strip CK key 1	All LCD key indicators are blank	Display screen is activated and shows all alphanumerics as indicated in Figure 9.
84	Dial Pad Key #	All LCD key indicators remain blank	Active

Table 12
M1250 Console test in QMT2 mode

Step	Key operated	LCD location and response	Display and Tones
85	Strip FK key 0	B0 to B4 lit	Active and busy tone
86	Strip FK key 2	All LCD indicators are lit as illustrated in Figure 9.	Display is activated and displays all alphanumerics as indicated in Figure 9.
87	Strip FK key 2	As in Step 86, but LCD indicators Fast Flash at 120 ipm.	As in Step 86, but LCD display Fast Flashes at 120 ipm.
88	Strip FK key 2	As in Step 86, but LCD indicators Flash at 60 ipm.	As in Step 86, but LCD display Flashes at 60 ipm.
89	Strip FK key 2	All 5-state LCD indicators (strips C and D/E) Slow Flash at 30 ipm.	Active
90	Strip FK key 3	All LCD indicators in strip A/A are lit	Active
91	Strip FK key 4	All LCD indicators in strip B/B lit	Active
92	Icon key (8)	All LCD indicators go off	Active
93	Icon key (7)	LCD indicators B0 to B4 lit	Active and dial tone, then busy tone
94	Strip FK key 5	LCD indicators B0 to B4 go off	Active and dial tone
95	Icon key (7)	LCD indicators B0 to B4 lit	Active
96	Strip FK key 5	LCD indicators B0 to B4 go off	Active and busy tone
97	Strip FK key 6	LCD indicators B0 to B4 lit	Active
98	Strip FK key 6	LCD indicators B0 to B4 go off	Active and busy tone
99	Handset unjacked	All LCD indicators go off	Active
100	Handset jacked in	B0 to B4 lit	Active and busy tone
101	Handset unjacked	All LCD indicators go off	Active
102	Handset jacked in at other side of console	B0 to B4 lit	Active and busy tone

Table 12
M1250 Console test in QMT2 mode

Step	Key operated	LCD location and response	Display and Tones
103	Strip FK key 0	B0 to B4 lit	Active and tone from speaker
104	Strip FK key 0	C0 lit	NIGHT
	End of test. Repeat for all additional consoles in QMT2 mode.		

M2250 Console

Table 13
M2250 Console

Step	Key operated	LCD location and response	Display and Tones
1	Select idle loop key		
2	Enter SPRE code 92	All LCDs lit except F1	888888888888888888. . . 888888888888888888. . .
3	Press dial pad #	All off	Active
4	Press dial key 1	D1 lit	1
5	Press dial key 2	E1 lit	12
6	Press dial key 3	D2 lit	123
7	Press dial key 4	E2 lit	1234
8	Press dial key 5	D3 lit	12345
9	Press dial key 6	E3 lit	123456
10	Press dial key 7	D4 lit	1234567
11	Press dial key 8	E4 lit	12345678
12	Press dial key 9	D5 lit	123456789
13	Press dial key 0	E5 lit	1234567890
14	Repeat step 4 until both lines of the display are full		12345678901234567. . . 12345678901234567. . .
15	Press dial pad *	All LCDs lit except F1	888888888888888888. . . 888888888888888888. . .
16	Press dial pad #	All LCD blank	ACTIVE
17	Press AK key 0	A0 lit	ABCDEFGHIJKLMNOP. . . NOPQRSTUVWXYZAB. . .
18	Press AK key 1	A1 lit	abcdefghijklmnopqrstuv wnopqrstuvwxyzabcdefg
19	Press AK key 2	A2 lit	Display shows series of dark squares
20	Press AK key 3	A3 lit	ACTIVE
21	Press AK key 4	A4 lit	ACTIVE

Table 13
M2250 Console

Step	Key operated	LCD location and response	Display and Tones
22	Press AK key 5	A5 lit	ACTIVE
23	Press AK key 6	A6 lit	ACTIVE
24	Press AK key 7	A7 lit	ACTIVE
25	Press AK key 8	A8 lit	ACTIVE
26	Press AK key 9	A9 lit	ACTIVE
27	Press BK key 0	B0 lit	ACTIVE
28	Press BK key 1	B1 lit	ACTIVE
29	Press BK key 2	B2 lit	ACTIVE
30	Press BK key 3	B3 lit	ACTIVE
31	Press BK key 4	B4 lit	ACTIVE
32	Press BK key 5	B5 lit	ACTIVE
33	Press BK key 6	B6 lit	ACTIVE
34	Press BK key 7	B7 lit	ACTIVE
35	Press BK key 8	B8 lit	ACTIVE
36	Press BK key 9	B9 lit	ACTIVE
37	Press CK key 0	C0 lit	IDLE
38	Press CK key 1	C1 lit	ACTIVE
39	Press CK key 2	C2 lit	ACTIVE
40	Press CK key 3	C3 lit	ACTIVE
41	Press CK key 4	C4 lit	ACTIVE
42	Press CK key 5	C5 lit	ACTIVE
43	Press CK key 6	C6 lit	ACTIVE
44	Press Icon key 1		C/H and ACTIVE
45	Press Icon key 2		BUSY
46	Press CK key 0	C1 lit	IDLE
47	Press GK key 0	GO lit	ACTIVE

Table 13
M2250 Console

Step	Key operated	LCD location and response	Display and Tones
48	Press GK key 1	G1 lit	ACTIVE
49	Press GK key 2	G2 lit	ACTIVE
50	Press GK key 3	G3 lit	ACTIVE
51	Press GK key 4	G4 lit	ACTIVE
52	Press GK key 5	G5 lit	ACTIVE
53	Press GK key 6	G6 lit	ACTIVE
54	Press GK key 7	G7 lit	ACTIVE
55	Press GK key 8	G8 lit	ACTIVE
56	Press GK key 9	G9 lit	ACTIVE
57	Press FK key 1	G9 and F1 lit	[S] ACTIVE
58	Press AK key 0	A0 and F1 lit	[S] ACTIVE
59	Press AK key 1	A1 and F1 lit	[S] ACTIVE
60	Press AK key 2	A2 and F1 lit	[S] ACTIVE
61	Press AK key 3	A3 and F1 lit	[S] ACTIVE
62	Press AK key 4	A4 and F1 lit	[S] ACTIVE
63	Press AK key 5	A5 and F1 lit	[S] ACTIVE
64	Press AK key 6	A6 and F1 lit	[S] ACTIVE
65	Press AK key 7	A7 and F1 lit	[S] ACTIVE
66	Press AK key 8	A8 and F1 lit	[S] ACTIVE
67	Press AK key 9	A9 and F1 lit	[S] ACTIVE
68	Press GK key 0	G1 and F1 lit	[S] ACTIVE
69	Press GK key 1	G2 and F1 lit	[S] ACTIVE
70	Press GK key 2	G3 and F1 lit	[S] ACTIVE
71	Press GK key 3	G4 and F1 lit	[S] ACTIVE
72	Press GK key 4	G4 and F1 lit	[S] ACTIVE
73	Press GK key 5	G5 and F1 lit	[S] ACTIVE

Table 13
M2250 Console

Step	Key operated	LCD location and response	Display and Tones
74	Press GK key 6	G6 and F1 lit	[S] ACTIVE
75	Press GK key 7	G7 and F1 lit	[S] ACTIVE
76	Press GK key 8	G8 and F1 lit	[S] ACTIVE
77	Press GK key 9	G9 and F1 lit	[S] ACTIVE
78	Press Hold key	F1 and B0-4 lit	[S] Busy tone in handset
79	Press Hold key	F1 and B0-4 lit	[S] Buzz in speaker
80	Press Hold key	F1 and C0 lit	[S] NIGHT or BUSY
81	Press CK key 1	F1 and C1 lit	[S] NIGHT or BUSY
82	Dial SPRE 92	All LCDs lit	888888888888888888. . . 888888888888888888. . .
83	Press dialpad #	F1 lit	[S] ACTIVE
84	Press FK key 1		ACTIVE
85	Press FK key 2	All LCDs lit except F1	888888888888888888. . . 888888888888888888. . .
86	Press FK key 2	LCDs Flash at 120 ipm	Flash ACTIVE/NIGHT
87	Press FK key 2	LCDs Flash at 60 ipm	Flash ACTIVE/NIGHT
88	Press FK key 2	LCDs Flash at 30 ipm	Flash ACTIVE/NIGHT
89	Press Icon key 8	All LCDs off	ACTIVE
90	Press Icon key 7	B0-4 lit	ACTIVE, dial tone
91	Press FK key 5	All LCDs off	ACTIVE, dial tone
92	Press Icon key 7	B0-4 lit	ACTIVE
93	Press FK key 5	All LCDs off	ACTIVE
94	Press FK key 6	B0-4 lit	ACTIVE
95	Press FK key 6	All LCDs off	ACTIVE
96	Handset out	All LCDs off	ACTIVE
97	Handset in	B0-4 lit	ACTIVE
98	Handset out	All LCDs off	ACTIVE

Table 13
M2250 Console

Step	Key operated	LCD location and response	Display and Tones
99	Handset in other side of console	B0-4 lit	ACTIVE
100	Press Hold key	B0-4 lit	ACTIVE, busy tone
101	Press Hold key	B0-4 lit	ACTIVE, Buzz in speaker
102	Press Hold key	C0 lit	NIGHT
103	End of test		

LD 32: Network and Peripheral Equipment Diagnostic

LD 32 performs checks and maintenance functions on network and Peripheral Signaling equipment. LD 32 will allow commands to be used for XTD cards. The STAT command will produce an output which has XTD, LDC or LGD appended where required.

On an Option 11C system, this program can be used to:

- get the status of peripheral equipment cards and units
- enable and disable peripheral equipment cards and units
- test message waiting lamps on 500/2500 telephone sets
- print set and card IDs
- convert packed TNs in hex to the card and unit format

On systems 51C, 61C and 81C, this program is used to:

- get the status of Peripheral Signaling (PS), Controller and network cards
- get the status of PE shelves cards and units
- disable and enable PS, Controller and network cards
- disable and enable PE shelves, cards and units
- test message waiting lamps on 500/2500 sets
- test Message Waiting Lamps (MWL) on 2500 sets during midnight routines
- print set and card IDs on superloops
- convert packed TNs in hex to the loop, shelf, card, unit format

Note 1: Disabled DID trunks are placed in the answer state while disabled.

Note 2: If Recorded Telephone Dictation (RTDT) cards are to be software enabled or disabled, the Out-of-Service (OS) lead should be connected to ground. On completion of the task, ground can be removed.

Note 3: Card ID information is presented as follows:

`CCCCCCCC-RRSSSS`

Where:

`CCCCCCCC` = is the order code
`RR` = is the release number
`SSSS` = is the serial number

Note 4: After making any changes to the route data block, IPE TRUNK CARDS MUST BE DOWNLOADED by issuing the ENLC l s c command.

Note 5: When getting the status of a card relating to a trunk error (STAT), the term RVSD may appear with the trunk information. RVSD indicates that the software detected a reversed wired trunk for that unit.

Overlay 32 Linkage

Overlay programs 10, 11, 20 and 32 are linked, thus eliminating the need to exit one Overlay and enter another. Once one of the aforementioned Overlays has been loaded, it is possible to add, print and obtain the status of a set without having to exit one Overlay and load another.

Input processing has also been enhanced. Prompts ending with a colon (:) allow the user to enter either:

1 a question mark (?) followed by a carriage return (<cr>)
This entry will present you with a list of valid responses to that prompt.

2 An abbreviated response
The system responds to this entry with the nearest match. If there is more than one possible match, the system responds with SCH0099, the input followed by a question mark, and a list of possible responses. The user can then enter a valid response.

Using Enable/Disable commands

All units on a loop go into maintenance busy mode when disabled using the DISL command. The shelves on a loop must be individually re-enabled via the ENLS command. Any telephones that were in lockout mode show as idle, then go into lockout mode again 30 seconds after any unit on the shelf requests dial tone.

On Option 11C systems, the DISL and ENLL commands are not available. Instead, use the DISS, ENLC, DISC and ENLS commands as described below.

When enabling a network loop serving ISDLC cards, the ISDLC cards must be individually disabled then re-enabled to ensure that service is restored to digital telephones. Service may also be restored to digital telephones by disconnecting, and then reconnecting the telephone's line cord.

Note 1: When the Trunk Failure Monitor (TFM) package is enabled, a failed trunk is displayed as BUSY. The enable/disable command does not enable or disable the failed trunk unit (it stays in the BUSY state).

Note 2: When the French Type Approval package (FRTA 197) is enabled then CO trunk units are not busied when they are disabled.

Fiber Network Fabric

The Fiber Network Fabric extends and enhances the 5-group network architecture to 8 non-blocking (inter-group) Network groups, with a resulting expansion in network capacity to 8k timeslots available for Intergroup traffic. This is achieved by using OC-12 SONET rings, and adding additional network and PE shelves, cards and cables and software changes to allow using the expanded network capacity. This expansion increases the number of available loops from 160 to 256. This applies to the Option 81C only.

Basic commands

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Basic commands

The following commands are applicable to 51C, 61C and 81C machines, except Option 11C. See the list of Option 11C commands for further information.

CDSP	Clear the maintenance display on active CPU to 00 or blank
CMIN	Clear the minor lamp on a system basis
CMIN ALL	Clear minor alarm indication on all attendant consoles
CONV tn	Convert packed TN (in hex) to loop, shelf, card and unit format
CONV l s c u	Convert loop, shelf, card and unit format to packed TN (in hex)
CPWD l s c u	Reset or Clear directory password for M3000 set M3903, M3904 and M3905 set
DISC l s c	Disable specified peripheral card
DISI l s c	Disable specified card when it is idle
DISL l	Disable network loop
DISR l s c u	Disable specified DTR/MFR card or unit
DISN l	Disable network card containing specified loop
DISS l s	Disable specified shelf
DISU l s c u	Disable specified unit
DSCT l	Disable automatic background continuity tests for superloop
DSNW l	Disable network card containing specified loop

DSPS x	Disable Peripheral Signaling card x
DSXP x	Disable controller x and all connected cards
END	Abort current test
ENLC l s c	Enable and reset specified peripheral card
ENLG x	Enable group x
ENLL l	Enable network loop
ENLN l	Enable network card with specified loop
ENLR l s c u	Enable specified DTR/MFR card or unit.
ENLS l s	Enable specified shelf
ENLU l s c u	Enable specified unit
ENNW l	Enable network card with specified loop
ENPS x	Enable PS card x and associated loops
FDLC	Cancel or stop the sytem wide flash download for M39xx units
FDLF l s c u	Initiate forced download to one M39xx unit regardless of version or state
FDLI l s c u	Initiate conditional download to one M39xx unit regardless of version or state
FDLU l s c u	Initiate conditional download to one M39xx unit
FDLS xxxx	Intiate system wide flash download to all or specified type of M39xx units
FSUM	Print summary report of firmware versions currently on M39xx units
FSUM ALL	Print complete report of all M39xx sets based on parameters specified in LD 97.
FWVU l s c u	Query and print the firmware versions currently on M39xx terminal
LBD l s	List TN of all PBX units on specified shelf, with lamps flagged as defective.
LBSY l s	List TNs of all busy units on specified shelf
LDIS l s	List TNs of all disabled units on specified shelf
LIDL l s	List TNs of all idle units on specified shelf
LLBD l s	List TNs of 500/2500 sets with defective MWLs
LMNT l s	List TNs of all maintenance busy units on specified shelf
MFR l s c u	Test specified MFR card or unit.
MFR l	Test all MFR units on loop l.
MFR	Test all MFR units
PBXH	Message Waiting lamp maintenance
PBXT ALL	Test all Message Waiting lamps
PBXT l (s c u)	Test Message Waiting lamps on loop (or shelf or card or unit)
SDLC l s c	Get status of specified ISDLC card
SDTR l s c u	List status of specified DTR/MFR card or unit.
SDTR	List the TN of all disabled DTR/MFR units

STAT	Get status of all configured loops in system
STAT l	Give status of one or all loops
STAT l s	Get idle, busy or disabled status of units on specified shelf
STAT l s c	Get status of specified card
STAT l s c u	Get status of specified unit
STAT NWK l	Check status of network card with specified loop
STAT PER x	Get status of PS card x
TRK l s c u	Seize specified trunk for outpulsing

Option 11C commands

CDSP	Clear the maintenance display on active CPU to 00 or blank
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c
CONV tn	Convert packed TN (in hex) to c u
CONV c u	Convert c u to packed TN (in hex)
CPWD c u	Reset or Clear directory password for M3000 set M3903, M3904 and M3905 set
DISC c	Disable specified peripheral card
DISI c	Disable specified card when it is idle
DISS x	Disable module
DISU c u	Disable specified unit
END	Abort current test
ENLC c	Enable and reset specified peripheral card
ENLR c u	Enable specified DTR/MFR card or unit.
ENLS x	Enable module
ENLU c u	Enable specified unit
FDLC	Cancel or stop the sytem wide flash download for M39xx units
FDLF c u	Initiate forced download to one M39xx unit regardless of version or state
FDLI c u	Initiate conditional download to one M39xx unit regardless of version or state
FDLU c u	Initiate conditional download to one M39xx unit
FDLS xxxx	Intiate system wide flash download to all or specified type of M39xx units according to parameters specified in Overlay 97 FDL configuration
FSUM	Print summary report of firmware versions currently on M39xx units
FSUM ALL	Print complete report of all M39xx sets based on parameters specified in LD 97.
FWVU c u	Query and print the firmware versions currently on M39xx terminal
IDC c	Print card ID
IDU c u	Print set ID
LBSY m	List TNs of all busy units in specified module
LDIS m	List TNs of all disabled units in specified module
LIDL m	List TNs of all idle units in specified module
LMNT m	List TNs of all maintenance busy units in specified module
MFR c u	Test specified MFR card or unit.
MFR c	Test MFR units on card c

PBXT c (u), ALL	Test message waiting lamps
SDTR c u	List status of specified DTR/MFR card or unit.
STAT (c)	Get status of specified or all cards
STAT c u	Get status of specified unit
TRK c u	Seize specified trunk for outpulsing

Superloop commands

Note: The Loop level commands are not supported for Option 11C.

DISL sl	Disable specified superloop
DSCT sl	Disable automatic background continuity tests for a superloop
DSXP x	Disable Controller x and all associated PE cards
ENCT sl	Enable automatic background continuity tests for a superloop
ENLL sl (v)	Enable superloop, download peripheral software version v
ENLL sl	Enable specified Superloop
ENXP x (v)	Enable Controller x and associated PE cards, download software version v
ENXP XPC x (v)	Enable Controller x, do not enable the associated PE cards, download software version v
IDC sl	Print Card ID for superloop and associated Controller(s)
IDC l s c	Print card ID for PE card
IDC sl	Get card id of LCI sl and its associated RCI
IDCS x	Print card ID for all cards on shelf controlled by Controller x
IDU l s c u	Print set ID
LBSY l s	List TNs of all busy units on specified shelf
LDIS l s	List TNs of all disabled units on specified shelf
LIDL l s	List TNs of all idle units on specified shelf
STAT sl	Get status of superloop and separate carriers on that superloop
SUPL (sl)	Print data for one or all superloops
XNTT sl	Do self-test of Network card for specified superloop
XPCT x	Do self-test on Controller x
XPEC (x)	Print data for one or all Controllers

Note: If a trunk unit is controlled by APNSS, the STAT commands will indicate this is an APNSS trunk and will also display the status of the D-channel. The display format remains the same.

ISDN BRI MISP commands

The following commands are available for ISDN Basic Rate Interface Multi-purpose ISDN Signaling Processor (MISP) cards.

DISL l	Disable MISP loop
DISL (appl) l	Disable specified application on MISP loop
DISL (appl) l 1	Disable and remove specified application from MISP loop
DISL (appl) l REM	Disable and remove specified application from MISP loop
DLIF l x	Download an UIPE BRI trunk interface data file to an MISP loop
ENLL l	Enable MISP loop
ENLL l FDL	Enable specified MISP loop and force download (FDL) basecode
ENLL (appl) l	Enable specified application on MISP loop
ENLL (appl) l 1	Enable specified application on MISP loop and force download the application loadware onto the MISP
ENLL (appl) l FDL	Enable specified application on MISP loop and force download the application loadware onto the MISP
IDC l	Print MISP card ID
PERR (appl) l	Upload error log for specified MISP
STAT l s	Get idle, busy or disabled status of units on specified shelf
STAT (appl) l	Get status of MISP loop (and application)

Option 11C BRI MISP commands

DISC c	Disable Multi-purpose ISDN Signaling Processor (MISP) loop
DISC (appl) c	Disable specified application on MISP loop
DISC (appl) c REM	Disable and remove specified application from MISP
DLIF c	Download a UIPE BRI trunk interface data file to MISP card
ENLC c	Enable Multi-purpose ISDN Signaling Processor (MISP) loop
ENLC c FDL	Enable specified MISP card and force download (FDL) basecode
ENLC (appl) c	Enable specified application on MISP card
ENLC (appl) c FDL	Enable specified application on MISP card and force download the application loadware onto the MISP
IDC c	Print MISP card ID
PERR (appl) c	Upload error log for specified MISP
STAT (appl) c	Get status of MISP card (and application)

ISDN BRI SILC/UILC commands

The following commands are available for ISDN Basic Rate Interface S/T-Interface line (SILC) or U-Interface line (UILC) cards and the associated Digital Subscriber Loops (DSL).

DIS AUTO l s c u	Disable automatic link recovery option of a DSL
DISC l s c	Disable S/T-Interface line (SILC) or U-Interface line (UILC) card
DISI l s c	Disable specified card when it is idle
DISU l s c d	Disable specified Digital Subscriber Loop (DSL) (0-7)
DSRB l s c d	Disable Remote Loop Back for specified BRI Trunk DSL
DSTS l s c d	Disable Remote Loop Back test mode for specified BRI Trunk DSL
ENL AUTO l s c u	Enable automatic link recovery option of a DSL
ENLC l s c	Enable S/T-Interface line (SILC) or U-Interface line (UILC) card
ENLU l s c d	Enable specified unit Digital Subscriber Loop (DSL) (0-7)
ENRB l s c d	Enable Remote Loop Back for specified BRI Trunk DSL
ENTS l s c d	Enable Remote Loop Back test mode for the specified BRI Trunk DSL
ESTU l s c d	Establish D-channel link for specified DSL
FDIS NCAL <l s c DSL#> <conn_ID>	Force disconnect the specified call-independent connection
FDLC	Cancel or stop the sytem wide flash download for M39xx units. Units include: M3902, M3903, M3904 and M3905.
FDLF l s c u	Initiate forced download to one M39xx unit regardless of version or state. Units include: M3902, M3903, M3904 and M3905.
FDLI l s c u	Initiate conditional download to one M39xx unit regardless of version or state. Units include: M3902, M3903, M3904 and M3905.
FDLU l s c u	Initiate conditional download to one M39xx unit. Units include: M3902, M3903, M3904 and M3905.
FDLS xxxx	Intiate system wide flash download to all or specified type of M39xx units. Where xxxx = M3902, M3903, M3904, M3905, ALL and NOW.
FSUM	Print summary report of firmware versions currently on M39xx units. Units include: M3902, M3903, M3904 and M3905.
FWVU l s c u	Query and print the firmware versions currently on M39xx terminal
IDC l s c	Print SILC/UILC card ID
PCON l s c d	Print configuration and LAPD parameters for specified BRI Trunk DSL
PERR (appl) l s c	Print protocol log for specified BRI line card
PLOG l s c d	Print protocol log for specified BRI Trunk DSL
PMES l s c d	Print Layer 3 message log for specified BRI Trunk DSL
PTAB l s c d	Upload and print Layer 3 Message configuration IE table for specified BRI Trunk DSL

PTAB l s c d <tbl #>	Upload and print specified Layer 3 Message configuration IE table for specified BRI Trunk DSL
PTRF l s c d	Print traffic data for specified BRI Trunk DSL
RLBT l s c d	Perform Remote Loop Back test on specified BRI Trunk DSL
RLSU l s c d	Release D-channel link for specified DSL
STAT l s c	Get status of specified SILC or UILC
STAT l s c d	Get status of specified Digital Subscriber Loop 0-7
STAT NCAL <l s c DSL#>	List all current call-independent connections on a given BRIT DSL
STAT NCAL <l s c DSL#> <conn_ID>	List information pertaining to a specific call-independent connection

Option 11C BRI SILC/UILC commands

DIS AUTO c d	Disable automatic link recovery option of a DSL
DISC c	Disable S/T-Interface line (SILC) or U-Interface line (UILC) card
DISI c	Disable specified card when it is idle
DISU c u	Disable specified Digital Subscriber Loop (DSL) (0-7)
DSRB c d	Disable Remote Loop Back for specified BRI Trunk DSL
DSTS c d	Disable Remote Loop Back test mode for specified BRI Trunk DSL
ENL AUTO c d	Enable automatic link recovery option of a DSL
ENLC c	Enable S/T-Interface line (SILC) or U-Interface line (UILC) card
ENLU c d	Enable specified unit Digital Subscriber Loop (0-7)
ENRB c d	Enable Remote Loop Back for specified BRI Trunk DSL
ENTS c d	Enable Remote Loop Back test mode for the specified BRI Trunk DSL
ESTU c d	Establish D-channel link for specified DSL
FDIS NCAL <c DSL#> <conn_id>	Force disconnect the specified call-independent connection (as defined by its connection ID number)
IDC c	Print SILC/UILC card ID
PCON c d	Print configuration and LAPD parameters for specified DSL
PERR (appl) c	Print protocol log for specified card
PLOG c d	Print protocol log for specified BRI Trunk DSL
PMES c d	Print Layer 3 message log for specified BRI Trunk DSL
PTAB c d	Upload and print Layer 3 Message configuration IE table for specified BRI Trunk DSL
PTAB c d <tbl #>	Upload and print specified Layer 3 Message configuration IE table for specified BRI Trunk DSL
PTRF c d	Print traffic data for specified BRI Trunk DSL
RLBT c d	Perform Remote Loop Back test on specified BRI Trunk DSL
RLSU c d	Release D-channel link for specified DSL
STAT c	Get status of specified SILC or UILC
STAT c d	Get status of specified Digital Subscriber Loop (0-7)
STAT NCAL <c DSL#>	List all current call-independent connections on a given BRIT DSL

ISDN BRI BRSC commands

The following commands are available for the ISDN Basic Rate Signaling Concentrator (BRSC) card.

DISC BRI l s c	Disable the BRSC ISDN BRI application.
DISC (BASE) l s c	Disable specified card.
ENLC (BASE) l s c (FDL/NST)	Enable specified card.
ENLC BRI l s c (FDL)	Enable the BRSC ISDN BRI application.
IDC l s c	Print BRSC card and loadware version.
STAT l s c	Get status of specified card.

Alphabetical list of commands

Command	Description	Pack/Rel
CDSP	Clear the maintenance display on active CPU to 00 or blank.	basic-1
CMIN	Clear the minor lamp on a system basis.	alrm_filter-22
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
CONV tn c u	Convert packed TN (in hex) to l s c u, or vice versa. Option 11C format	xpe-15
CONV tn l s c u	Convert packed TN (in hex) to l s c u Convert packed TN (in hex) to tn The command format is: • CONV tn - convert packed TN • CONV l s c u - convert unpacked TN Where: • l = 0-255, Option 81C with Fiber Network Fabric	xpe-15 fnf-25
CPWD l s c u c u	Reset or Clear directory password for M3000 set. Option 11C format Allows the M3000 Directory password of the specified M3000 set to be reset to default (12345678). This allows a user to access the M3000 Directory if the password has been forgotten or if the user wants to change the current password. Applies to M3903, M3904, M3905, and i2004. For M3900 Phase 3 terminals the Directory password is cleared. Where: • l = 0-255, Option 81C with Fiber Network Fabric	basic-24 itg-25 fnf-25
DIS AUTO l s c u c u	Disable automatic link recovery option of a DSL Option 11C format	bri-18
DISC (appl) c	Disable application on Multi-purpose ISDN Signaling Processor (MISP). (Option 11C). Where: appl =BRIL (Basic Rate Interface Line), BRIT (Basic Rate Interface Trunk), or BRIE (UIPE Basic Rate Interface Trunk)	bri-18

DISC (appl) c REM	Disable and remove application from Multi-purpose ISDN Signaling Processor (MISP). (Option 11C) Where: appl =BRIL (Basic Rate Interface Line), BRIT (Basic Rate Interface Trunk), or BRIE (UIPE Basic Rate Interface Trunk)	bri-18
DISC (BASE) l s c	Disable specified BRSC card or to disable the ISDN Basic Rate Interface Signaling Concentrator (BRSC) card. Where: • BASE = Disable only the basecode. If not specified, both the basecode and application are disabled. The application is disabled first unless BASE is entered. The card faceplate LED is turned on to indicate the card is disabled, and the IPC channel is eliminated. The "." prompt is given when the process is complete.	bri-18
DISC BRI l s c	Disable the BRSC ISDN BRI application. All active and transient ISDN BRI calls are dropped, and all signaling and packet channels are torn down. The DSL software state remains the same, but the ISDN BRI line cards receive a disable message.	bri-18
DISC c	Disable specified DTR/MFR card. (Option 11C) This command is also used for Multi-purpose ISDN Signaling Processor (MISP). If BRI reference clock source is configured on this SILC the user will be prompted with: `CLOCK SOURCE ON DSL #, PROCEED? ,` where # = unit 0-7 *For Option 11C*: DISC 0 disables all configured units on card 0	basic-1
DISC l s c	Disable specified peripheral card. If BRI reference clock source is configured on this SILC the user will be prompted with: `CLOCK SOURCE ON DSL #, PROCEED? ,` where # = unit 0-7	basic-1

DISI c	Disable specified card when it is idle. (Option 11C) If BRI reference clock source is configured on this SILC the user will be prompted with: `CLOCK SOURCE ON DSL #, PROCEED? ,` where # = unit 0-7	basic-1
DISI l s c	Disable specified card when it is idle. Where: • l = 0-255, Option 81C with Fiber network Fabric If BRI reference clock source is configured on this SILC the user will be prompted with: `CLOCK SOURCE ON DSL #, PROCEED? ,` Where: # = unit 0-7	basic-1 fnf-25
DISL (appl) l	Disable application on MISP loop. Where appl = • BRIL (Basic Rate Interface Line), or • BRIT (Basic Rate Interface Trunk)	bri-18
DISL (appl) l 1	Disable MISP loop. Where: appl =BRIL (Basic Rate Interface Line), BRIT (Basic Rate Interface Trunk), or BRIE (UIPE Basic Rate Interface Trunk). Applicable if SUPP package 131 is not equipped.	bri-18
DISL (appl) l 1	Disable MISP application and loop. Where: • appl = optional application name (BRIL) • 1 = force download the application	bri-18
DISL (appl) l REM	Disable and remove application from Multi-purpose ISDN Signaling Processor (MISP). Applicable if SUPP package 131 is equipped.	bri-18
DISL l	Disable network loop. See “Using the Enable/Disable commands” in the introduction. This command is also used for superloops and MISPs.	basic-1

DISL sl	Disable specified superloop. Active calls on the superloop will be disconnected and line transfer will occur at the remote end.	basic-21
DISN l	Disable network card containing specified loop, where “loop” is the number of the even or odd loop. Not applicable to superloops.	
DISR l s c u	Disable specified DTR/MFR card or unit. The LED should be lit on the XMFR card in response to this command.	basic-21
DISS l s	Disables specified shelf. See “Using the Enable/Disable commands” in the introduction.	basic-1
DISS m	Disables specified module. Where: m = 0 for Main or m = 1-4 for Expansion module. (Option 11C) See “Using the Enable/Disable commands” in the introduction.	basic-1
DISU BRI l s c	Disable ISDN BRI BRSC card.	brit-19
DISU c d	Disable specified Digital Subscriber Loop (0-7). (Option 11C). If BRI reference clock source is configured on the DSL, the user will be prompted with: `CLOCK SOURCE ON THIS DSL, PROCEED?`	bri-18
DISU c u	Disables specified unit. See “Using the Enable/Disable commands” in the introduction. (Option 11C) *For Option 11C*: 0-15 may be accepted as input for card 0.	basic-1
DISU l s c d	Disable specified Digital Subscriber Loop 0-7. If BRI reference clock source is configured on the DSL the user will be prompted with: `CLOCK SOURCE ON THIS DSL, PROCEED?`	bri-18
DISU l s c u	Disable specified unit. See “Using the Enable/Disable commands” in the introduction.	basic-1
DLIF c	Download a UIPE BRI trunk interface data file to MISP card (Option 11C).	bri-18

DLIF l x	Download an UIPE BRI trunk interface data file to a MISP loop. The MISP specified must have the BRIT UIPE loadware application. Where x may be: • (0) = UIPE SL1 • 1 = ETSI QSIG • 2 = ISO QSIG • 28 = ETSI QSIG GF • 29 = ISO QSIG GF To achieve a successful download: 1. the MISP basecode must be enabled 2. the specified MISP must have the UIPE BRI trunk loadware configured 3. the interface must be inactive (interpret this to mean that either the UIPE BRI trunk application must be disabled or no DSL of this interface type can be enabled) QSIG package 263 is required to have ETSI and ISO options.	bri-18
DSCT l	Disable automatic background continuity tests for a superloop. Where: • loop = 0-252 and must be a superloop (multiples of 4), Option 81C with Fiber Network Fabric	xpe-15 fnf-25
DSIF L PDL2 l s c	Disables the SAPI 16 interface number for BRSC on l s c for the MPH on loop L.	bri-19
DSIF L PDL2 L1	Disables SAPI 16 interface number for BRIL on Loop L1 for MPH on loop L.	bri-19
DSIF l s c DSL BCH x	Disables the link interface for B-channel x for DSL l s c bch. Where: x = 1–2	bri-19
DSIF l s c DSL DCH x	Disables the link interface number for USID x for the DSL on l s c dch.	bri-19
DSIF l PDNI Y	Disable the link interface number Y for PDNI on Loop Y (1-3)	bri-19

DSNW l — Disable network card containing specified loop, where “loop” is the number of the even or odd loop. Not applicable to superloops. basic-1

DSPS x — Disables Peripheral Signaling (PS) card x and loops serviced by the card. basic-1

Where:

- x = 0-9, Option 51C, 61C
- x = 0-15, Option 81C with Fiber Network Fabric fnf-25

Disabling PS card 0 interrupts service on loops 0 to 15. To re-enable the card, use the ENPS x command.

If this fails, a system initialization may be required. Use the disable command with discretion. Disabling a PS card disables up to 16 loops.

The following lists the group/PS/loop relationship:

Group	PS	Loops
0	0	0 to 15
0	1	16 to 31
1	2	32 to 47
1	3	48 to 63
2	4	64 to 79
2	5	80 to 95
3	6	96 to 111
3	7	112 to 127
4	8	128 to 143
4	9	144 to 159
5	10	160 to 175
5	11	176 to 191
6	12	192 to 207
6	13	208 to 223
7	14	224 to 239
7	15	240 to 255

DSRB c d — Disable Remote Loop Back for specified BRI Trunk DSL (Option 11C) bri-18

DSRB l s c d — Disable Remote Loop Back for specified BRI Trunk DSL bri-18

DSTS c d — Disable Remote Loop Back test mode for specified BRI Trunk DSL (Option 11C) bri-18

DSTS l s c d	Disable Remote Loop Back test mode for specified BRI Trunk DSL	bri-18
DSXP x	Disable Controller x and all connected cards.	xpe-15
ENCT l	Enable automatic background continuity tests for loop. Where: • loop = 0-159 • loop = 0-252 and must be a superloop (multiples of 4), Option 81C with Fiber Network Fabric	xpe-15 fnf-25
END	Abort current test. Stops outputting. Stops current test.	basic-1
ENIF L PDL2 l s c	Enables the SAPI 16 interface number for BRSC on l s c for MPH on loop L.	bri-19
ENIF l s c DSL BCH x	Enables the link interface for B-channel x for DSL l s c bch. Where: x = 1–2	bri-19
ENIF l s c DSL DCH x	Enables the link interface number for USID x for the DSL on l s c dch.	bri-19
ENIF l PDNI Y	Enables the link interface number Y for PDNI on Loop Y (1-3).	bri-19
ENL AUTO c d	Enable automatic link recovery option of a DSL (Option 11C)	bri-18
ENL AUTO l s c u	Enable automatic link recovery option of a DSL.	bri-18
ENLC (appl) c	Enable specified application on Multi-purpose ISDN Signaling Processor (MISP) card. (Option 11C). Where: • appl = optional application name BRIL (Basic Rate Interface Line) or BRIT (Basic Rate Interface Trunk)	bri-18
ENLC (appl) c FDL	Enable and force download loadware for specified application on Multi-purpose ISDN Signaling Processor (MISP) card. (Option 11C). Where appl = • BRIL (optional application name: Basic Rate Interface Line), or • BRIT (Basic Rate Interface Trunk)	bri-18

ENLC (BASE) l s c (FDL/NST) brit-19

Enable specified card.

If the card resides on a disabled shelf, the status is output and enable is not performed. If card has been disabled by overload, the overload status entry is cleared.

Used to enable the ISDN Basic Rate Interface Signaling Concentrator (BRSC) card. The command format is shown here. ENLC (BASE) l s c u (FDL/NST)

Where:

- BASE = enable only the BRSC basecode. If not specified, both the basecode and the application will be enabled.
- l = loop
- s = shelf
- c = card
- FDL = force download the basecode
- NST = No self-test

The card faceplate is turned off to indicate the card is enabled, and the IPC channel is built.

ENLC BRI l s c (FDL) brit-19

Enable the BRSC ISDN BRI application. Where:

- BRI = the BRSC ISDN BRI application
- l = loop
- s = shelf
- c = card
- FDL = force download the application

The application is force downloaded if:

- FDL is entered, or
- No application currently exists on the BRSC card, or
- There is a version number mismatch between the applications in the software and on the card.

ENLC c	Enable and reset specified DTR/MFR card. (Option 11C) If the card resides on a disabled shelf, the status is output and enable is not performed. If card has been disabled by overload, the overload status entry is cleared. This command is also used for Multi-purpose ISDN Signaling Processor (MISP)., S/T-Interface (SILC), and U-Interface (UILC) line cards. This command causes the card to perform a self test. If the card self test passes, the LED will blink 3 times. If it fails, the LED will be lit solidly. A XMI message will be issued to indicate that the XMFR card has powered up. This command can be used to enable a XMFR card. ENLC 0 enables all units (0-15) on TDS card 0 if enabled. The TDS card can be enabled by entering the command ENLX 0 in LD 34.	basic-1
ENLC c FDL	Enable Multi-purpose ISDN Signaling Processor (MISP) and force download basecode.(Option 11C)	bri-18
ENLC l s c	Enable and reset specified peripheral card. If the card resides on a disabled shelf, the status is output and enable is not performed. If card has been disabled by overload, the overload status entry is cleared. This command causes the card to perform a self test. If the card self test passes, the LED will blink 3 times. If it fails, the LED will be lit solidly. A XMI message will be issued to indicate that the XMFR card has powered up. This command can be used to enable a XMFR card. This command is also used for the S/T-Interface (SILC) and U-Interface (UILC) line cards.	basic-1
ENLG x	Enable group x. Equivalent to two ENPS commands. Refer to DSPS command for the relationships of groups, PS cards and loops. Where: • x = Group 0-7, Option 81C with Fiber Network Fabric	basic-1 fnf-25
ENLL (appl) l	Enable specified application on Multi-purpose ISDN Signaling Processor (MISP) loop. Where appl = • BRIL (Basic Rate Interface Line) or • BRIT (Basic Rate Interface Trunk)	bri-18

ENLL (appl) l 1	Enable MISP application, and loop. Where: • appl = optional application name (BRIL) • loop = loop number • 1 = force download the application	bri-18
ENLL (appl) l FDL	Enable and force download loadware for specified application on Multi-purpose ISDN Signaling Processor (MISP) loop. Applicable if SUPP package 131 is equipped.	bri-18
ENLL (appl) l 1	Enable MISP loop. Where: • appl = optional application name (BRIL) • 1 = force downloads the application • Applicable if SUPP package 131 not equipped.	bri-18
ENLL l	Enable network loop. See “Using the Enable/Disable commands” in the introduction. This command is also used for Multi-purpose ISDN Signaling Processors (MISP).	basic-1
ENLL l FDL	Enable MISP and force download basecode.	bri-18
ENLL l (v)	Enable superloop, download peripheral software version v. If version v is not specified, the software downloaded is current (c) or latest (l) version as defined in LD 97.	xpe-15
ENLL sl	Enable specified Superloop. OK is output if the operation is successful.	basic-21
ENLN l	Enable network card with specified loop, where loop is the even or odd numbered loop on the network card. Not applicable to superloops.	
ENLR c u	Enable the specified DTR/MFR card. (Option 11C) Meridian 1 software will issue a message to request XMFR to perform an echo test only when ENLR is issued to enable the XMFR card.	basic-21

ENLR l s c u	Enable the specified DTR/MFR card. Meridian 1 software will issue a message to request XMFR to perform an echo test only when ENLR is issued to enable the XMFR card.	basic-21
ENLS l s	Enable specified shelf. Where: l = loop and s = shelf. If the shelf is disabled by overload, the overload status entry is cleared.	basic-1
ENLS m	Enable the specified module. (Option 11C). Where: m = 0 for base module or m = 1-4 for expansion module. If the module is disabled by overload, the overload status entry is cleared.	basic-1
ENLU c d	Enable Digital Subscriber Loop (0-7) (Option 11C)	bri-18
ENLU c u	Enable specified unit. (Option 11C) ENLU c u accepts units 0-15 as input. Units can only be enabled if TDS 0 is enabled. *For Option 11C*: For Slot 0, the TDS must first be enabled by entering the command ENLX 0 in LD 34.	basic-1
ENLU l s c d	Enable Digital Subscriber Loop (0-7).	bri-18
ENLU l s c u	Enable specified unit. If the unit resides on a disabled shelf or card, the status is output and enable is not performed. If the unit to be enabled is a 500/2500 message waiting telephone, test the unit prior to enabling.	basic-1
ENNW l	Enable network card with specified loop, where loop is the even or odd numbered loop on the network card. Not applicable to superloops.	basic-1
ENPS x	Enables PS card x and all loops that were enabled at time of last DSPS command. Refer to DSPS command to find the relationships of groups, PS cards and loops. Where: • x = 0-15, Enable PS card and clear PBX_LAMP BADBITS for Option 81C with Fiber Network Fabric	basic-1 fnf-25
ENRB c d	Enable Remote Loop Back for specified BRI Trunk DSL. (Option 11C)	bri-18

ENRB l s c d	Enable Remote Loop Back for specified BRI Trunk DSL.	bri-18
ENTS c d	Enable Remote Loop Back test mode for specified BRI Trunk DSL. (Option 11C)	bri-18
ENTS l s c d	Enable Remote Loop Back test mode for specified BRI Trunk DSL.	bri-18
ENXP x (v)	Enable Controller x and associated PE cards, download software version v. Enable all PE cards connected to Controller x and the Controller itself. If version v is not specified, the software downloaded to the Controller is current (c) or latest (l) version as defined in LD 97.	xpe-15
ENXP XPC x (v)	Enable Controller x, do not enable the associated PE cards, download software version v. The cards connected to the Controller are not enabled by this command. If version v is not specified, the software downloaded to the Controller is current (c) or latest (l) version as defined in LD 97.	xpe-15
ESTU c d	Establish D-channel link for the specified Digital Subscriber Loop (0-7). (Option 11C)	bri-18
ESTU l s c d	Establish D-channel link for the specified Digital Subscriber Loop (0-7).	bri-18
FDIS NCAL <c DSL#> <conn_id>	Force disconnect the specified call-independent connection (as defined by its connection ID number) Note that the command format for an Option 11C is: `STAT NCAL <c 0 0 DSL#><conn_id#>`	qsig gf-22
FDIS NCAL <l s c DSL#> <conn_id>	Force disconnect the specified call-independent connection (as defined by its connection ID number)	qsig gf-22
FDLC	Cancel or stop the sytem wide flash download for M39xx units. Units include: M3902, M3903, M3904 and M3905.	arie- 25

FDLF l s c u	Initiate forced download to one M39xx unit regardless of version or state. Units include: M3902, M3903, M3904 and M3905.	arie- 25
FDLI l s c u	Initiate conditional download to one M39xx unit regardless of version or state. Units include: M3902, M3903, M3904 and M3905.	arie- 25
FDLU l s c u	Initiate conditional download to one M39xx unit. Units include: M3902, M3903, M3904 and M3905.	arie- 25
FDLS xxxx	Intiate system wide flash download to all or specified type of M39xx units according to parameters specified in Overlay 97 FDL configuration. Where xxxx = M3902, M3903, M3904, M3905, ALL and NOW.	arie- 25
FSUM	Print summary report of firmware versions currently on M39xx units. Units include: M3902, M3903, M3904 and M3905.	arie- 25
FSUM ALL	Print complete report of all M39xx sets based on parameters specified in LD 97.	arie-25
FWVU l s c u	Query and print the firmware versions currently on M39xx terminal	arie- 25
IDC c	Print MISP or XPE card ID. (Option 11C) The MISP card ID output format is: • CARDID: xxx. . . x • BASECODE VERSION: xxx. . . x • BRI LINE/TRUNK VERSION: xxx. . . x • BOOTCODE VERSION: xxx. . . x The MISP card ID output format is: • CARDID: xxx. . . x • BASECODE VERSION: xxx. . . x • BRI LINE/TRUNK VERSION: xxx. . . x • BOOTCODE VERSION: xxx. . . x	bri-18
IDC l	Print ID of Network and Peripheral Controller Where: • l = 0-252 and must be a superloop (multiple of 4), Option 81C with Fiber Network Fabric	fnf-25

IDC l s c — Print BRSC card and loadware version. — brit-19

This command, queries the BRSC card ID, the basecode, and the application version number. Where: l = loop, s = shelf, and c = card.

Output example:

- `BOOTCODE  VERSION  xx . . . x`
- `BASECODE  VERSION  xx . . . x`
- `BRI APPL   VERSION  xx . . . x`

IDC l s c — Print MISP or XPE card ID. — bri-18

The MISP card ID output format is:

- `CARDID: xxx. . .  x`
- `BASECODE VERSION: xxx. . .  x`
- `BRI LINE/TRUNK VERSION: xxx. . .  x`
- `BOOTCODE VERSION: xxx. . .  x`

The XPE card ID output format is:

```
=> XXXX  CCCCCCCC-RRSSSS
```

Where:

- `XXXX` = card type (i.e., XDTR, XUT, etc.)
- `CCCCCCCC` = order code
- `RR` = release number
- `SSSS` = is the serial number

IDC l s c d — Print ID of Digital Subscriber Loop 0-7. — bri-18

IDC sl

For Copper Connections xpe-15

Print Network ID and Controller for a superloop.

Output format for superloop card ID:

```
XNET VERS => xxx
RUNNING FROM yyy
FW IS SANE
    CCCCCCCC-RRSSSS

XPEC0 VERS => xxx
RUNNING FROM yyy
FW IS SANE
    XPECz CCCCCCCC-RRSSSS

XPEC1 VERS => xxx
RUNNING FROM yyy
FW IS SANE
    XPECz CCCCCCCC-RRSSSS
```

Where:

- `xxx` = loadware version
- `yyy` = RAM or ROM
- `z` = 2 or 4
- `CCCCCCCC` = order code
- `RR` = release number
- `SSSS` = is the serial number

IDC sl

For Carrier Connections rem_ipe-21

Get card id of Local Carrier Interface (LCI) superloop and its associated Remote Carrier Interface (RCI).

Output format for LCI superloop card ID:

```
LCI VERS => xxx
FW IS SANE
aaaaaaaaaaaa
```

Output format for RCI superloop card ID:

```
XPEC VERS=>xxx
FW IS SANE
aaaaaaaaaaaa
```

Where:

- `xxx` = loadware version
- `aaaaaaaaaaaa` = contents of ID EEPROM (LCI or RCI)

IDC sl *For Fibre Connections* rem_ipe-22

Print card ID of optical packets and main boards for Fibre superloop and associated Controller(s)

The output format for the superloop card ID including optical packets is:

```
FNET VERS => xxx
FW IS SANE
  aaaaaaaaaaaaa
PRIM: pppppppp
SEC: ssssssss
```

```
XPEC VERS => xxx
FW IS SANE
  aaaaaaaaaaa
PRIM: pppppppp
SEC: ssssssss
```

Where:

1. `xxx` = loadware version
2. `aaaaaaaaaaaaa` = contents of ID EEPROM (FNET or FPEC)
3. `PRIM: pppppppp` = contents of ID EEPROM primary packet (if present)
4. `SEC: ssssssss` = contents of ID EEPROM secondary packet (if present)

IDC l s c Print card ID for PE card. The format is: xpe-15

IDC l s c — print ID of specified line card

The format of the card ID is `CCCCCCCC-RRSSSS`, where:

- `CCCCCCCC = order code`
- `RR = release number`
- `SSSS = serial number`

For example, a Network Card (NT8D04AA) with a release of 01 and serial number of 00001 will have a card ID with: NT8D04AA-010001

For BRI MISP cards, the output is:

- `CARDID: xxx...x`
- `BASECODE VERSION: xxx...x`
- `BRI LINE/TRUNK VERSION: xxx...x`
- `BOOTCODE VERSION: xxx...x`

IDCS x	Print card ID for all cards on shelf controlled by Controller x. The card ID for all cards in shelf controlled by Controller x is output. The XPE card ID output format is: `=> XXXX CCCCCCCC-RRSSSS` Where: • XXXX = card type (i.e., XDTR, XUT, etc.) • CCCCCCCC = order code • RR = release number • SSSS = is the serial number	xpe-15
IDU c d	Print set ID for Digital Subscriber Loop d (0-7) (Option 11C)	bri-18
IDU l s c d c u	Print set ID for Digital Subscriber Loop d (0-7) Option 11C format	bri-18
IDU l s c u	Print set ID. Print ID applies to the following set types: M2006, M2008, M2016, M2216 and M2616. The output format of the set ID (M2008 for example) is: • ARIES TN: l s c u • TN ID CODE: M2008 • NT CODE: NT2K08WC • COLOR CODE: xx • RLS CODE: xx • SER NUM xxxxxx The color codes are: • 03 is black • 35 is chameleon ash • 93 is dolphin grey	xpe-15
LBD l s	List TN of all PBX units on specified shelf, with lamps flagged as defective.	fnf-25
LBSY l s	List TNs of all busy units on specified shelf.	basic-1
LBSY m	List TNs of all busy units in specified module. (Option 11C). Where: m = 0 for Base module or 1 for Expansion module.	basic-16
LDIS l s	List TNs of all disabled units on specified shelf.	basic-1

LDIS m	List TNs of all disabled units on specified module. (Option 11C). Where: m = 0 for Base module or 1 for Expansion module.	basic-16
LIDL l s	List TNs of all idle units on specified shelf.	basic-1
LIDL m	List TNs of all idle units in specified module. (Option 11C). Where: m = 0 for Base module or 1 for Expansion module.	
LMNT l s	List TNs of all maintenance busy units on specified shelf.	basic-1
LMNT m	List TNs of all maintenance busy units on specified module. (Option 11C). Where: m = 0 for Base module or m = 1 for Expansion module.	
MFR c	Test all MFR units on card c During the MFR test, faulty MFR/XMFR cards are disabled and MFRxxx error messages are output.	basic-21
MFR c u	Test specified MFR card or unit. During the MFR test, faulty MFR/XMFR cards are disabled and MFRxxx error messages are output.	basic-21
MFR l s c u	Test specified MFR card or unit. During the MFR test, faulty MFR/XMFR cards are disabled and MFRxxx error messages are output.	basic-21
MFR l	Test all MFR units on loop l During the MFR test, faulty MFR/XMFR cards are disabled and MFRxxx error messages are output.	basic-21
MFR <cr>	Test all MFR units During the MFR test, faulty MFR/XMFR cards are disabled and MFRxxx error messages are output.	basic-21
PBXH	Message Waiting lamp maintenance.	basic-1
PBXT (c u), ALL	Tests 500/2500 Message Waiting lamp on specified card or unit. This is required after failed lamp is fixed. (Option 11C)	basic-1

PBXT ALL	Test all Message Waiting lamps on 500/2500 telephones on all loops Where: ALL = loops 0-255, Option 81C with Fiber Network Fabric	basic-5 fnf-25
PBXT l (s c u)	Tests 500/2500 Message Waiting lamp on specified loop, shelf, card or unit. This is required after failed lamp is fixed.	basic-5
PCON c d	Upload and print configuration and LAPD parameters for specified DSL. (Option 11C)	bri-18

PCON l s c d	Upload and print configuration and LAPD parameters for specified DSL. This command requires the specified DSL to be configured for the BRI Trunk Application. See example below:
	`PCON 6 0 0 6`
	`.DSL: 6 0 0 6 LINL PARAM CONFIRM TIME: 0:02:10`
	`INTERFACE: SL-1`
	`OPER MODE: USR`
	`T200: 2`
	`T203: 20`
	`N200: 3`
	`N201: 260`
	`K: 1`
	`PROT #: 1`
		bri-18

PERR (appl) c	Upload and print Layer 2 error log for specified SILC, UILC or MISP card. (Option 11C) Where (appl): • BRIE for UIPE Basic Rate Interface Trunk • BRIT for NON-UIPE Basic Rate Interface Trunk	bri-18
PERR (appl) l	Upload and print Layer 2 error log for specified MISP. Where (appl): • BRIE for UIPE Basic Rate Interface Trunk • BRIT for NON-UIPE Basic Rate Interface Trunk	bri-18

PERR (appl) l s c — Upload and print Layer 2 error log for specified SILC or UILC. This command requires the specified MISP or line card to be configured for the BRIT Application. bri-18

Where (appl):

- BRIE for UIPE Basic Rate Interface Trunk
- BRIT for NON-UIPE Basic Rate Interface Trunk

If error log is requested for a line card the error log for each DSL is printed. If error log is requested for a MISP the application global log is also printed.
Interpretation of error logs:

1st byte is DSL number or “80” for Application log.
2nd byte is number of non-zero logs.

If errors were logged the subsequent information is printed for each error type:

- 3rd byte is counter type code
- 4th byte is “HIGH” byte of count
- 5th byte is “LOW” byte of count

Examples follow :

```
PERR brie 6
.DSL: 6 0 0 6 ERR LOG CONFIRM TIME: 0:02:10
00  00    01  00    06  00    07  00
^          ^           ^           ^

DSL 0    DSL 1     DSL 6    DSL 7 (no errors
for all DSLs)

PERR brie 3
.DSL: 5 0 0 2 ERR LOG CONFIRM TIME: 0:02:10
80 01 4D 00 09
```

Where:

- 1st byte - `80` - indicates Application global log
- 2nd byte - `01` - is number of error logs
- 3rd byte - `4D` - is counter type code
- 4th bye - `00` - is “HIGH” byte count
- 5th byte - `09` - is “LOW” byte counts for all DSLs

PLOG c d — Upload and print protocol log for specified BRI Trunk DSL. (Option 11C) bri-18

PLOG l s c d	Upload and print protocol log for specified BRI Trunk DSL. The protocol log keeps record of up to 32 protocol types. Only non-zero counters are uploaded and printed.
	
	This command requires the specified MISP or line card to be configured for the BRIT Application. See example below:
	
	`PLOG 6 0 0 6`
	
	`.DSL: 6 0 0 6 PROTOCOL CONFIRM TIME: 0:02:10`
	
	`17 117 <--Counter 17 shows 117 SABME frames received with incorrect C/R bit`
	
	`18 141 <--Counter 18 shows 141 supervisory frames received with F=1`
	
	`19 84 <--Counter 19 shows 84 unsolicited DM responses with F=1`
		bri-18

PMES c d	Upload and print Layer 3 message log for specified DSL. (Option 11C)	bri-18

PMES l s c d	Upload and print Layer 3 message log for specified DSL. This command requires the specified DSL to be configured for the BRI Trunk Application.
	
	Each time a valid Layer 3 message is received by the MISP, a counter for that particular message is incremented. The log keeps track of up to 20 message types.
	
	Only non-zero items are uploaded and printed. Making trunk calls will create a printable log. In the following example, 2 calls were made:
	
	`PMES 6 0 0 6`
	
	`.DSL: 6 0 0 6 MSG LOG CONFIRM TIME: 0:02:10`
	
	`ALERT: 2`
	`PROC: 2`
	`CONNECT: 2`
	`DISCONN: 2`
	`REL COP: 2`
		bri-18

PTAB c d	Upload and print Layer 3 Message configuration IE table for specified BRI trunk DSL. (Option 11C)	bri-18

PTAB l s c d	Upload and print Layer 3 Message configuration IE table for specified BRI trunk DSL. PTAB uploads what was downloaded when the Application was enabled.	bri-18
PTAB c d <tbl #>	Upload and print specified Layer 3 Message configuration IE table for specified BRI trunk DSL. Where: <tbl #> = table number. (Option 11C)	bri-18
PTAB l s c d <tbl #>	Upload and print specified Layer 3 Message configuration IE table for specified BRI trunk DSL. PTAB uploads what was downloaded when the Application was enabled. Where: <tbl #> = table number.	bri-18
PTRF c d	Upload and print traffic report for specified BRI Trunk DSL. (Option 11C) The following traffic information is output: CONNECTED NCALLS : Total number of established call-independent connections	bri-18
PTRF l s c d	Upload and print traffic report for specified BRI Trunk DSL. This command requires the specified DSL to be configured for the BRI Trunk Application. See example below: PTRF 6 0 0 6 .DSL: 6 0 0 6 TRAFFIC CONFIRM TIME: 0:02:10 PEAK_I_US: 0 <-- Peak link usage (over a 5 second period) for incoming traffic since the last time the traffic data was uploaded. An integer 0 - 100 which represents the percentage of the link capacity used. AVRG_I_US: 0 <-- Average link usage for incoming traffic since the traffic was last uploaded. PEAK_O_US: 0 <-- Peak link usage (over a 5 second period) for outgoing traffic since the last time the traffic data was uploaded. An integer 0 - 100 which represents the percentage of the link capacity used. AVRG_O_US: 0 <-- Average link usage for outgoing traffic since the traffic was last uploaded. TIME: 0 <-- time since last traffic upload query CONNECTED CALL: 2 <-- number of successfully connected trunk calls	bri-18

RLBT c d	Perform Remote Loop Back Test on specified BRI Trunk DSL. (Option 11C)	bri-18
RLBT l s c d	Perform Remote Loop Back Test on specified BRI Trunk DSL.	bri-18
RLSU c d	Release D-channel link for specified Digital Subscriber Loop (0-7). (Option 11C)	bri-18
RLSU l s c d	Release D-channel link for specified Digital Subscriber Loop (0-7).	bri-18
RMIF L PDL2 l s c	Disables and removes the SAPI 16 interface number for BRSC on l s c for MPH on loop L.	bri-19
RMIF L PDL2 L1	Disables and removes the SAPI 16 interface number for BRIL on Loop L1 for MPH on loop L.	bri-19
RMIF l s c DSL BCH x	Disables and removes the link interface for B-channel x for DSL l s c bch; where: x = 1–2	bri-19
RMIF l PDNI Y	Disables and removes the link interface number Y for PDNI on Loop Y (1-3)	bri-19
SDLC l s c	Get status of specified ISDLC card.	basic-7
SDTR c u	List status of specified DTR/MFR card or unit.	basic-21
SDTR l s c u	List status of specified DTR/MFR card or unit.	basic-21
SDTR <cr>	List status of all disabled DTR/MFR units	basic-21
STAT	Get status of all configured loops in system	basic-1
STAT (appl) c	Get status of MISP card and application. (Option 11C) See STAT (appl) loop for possible responses.	bri-18
STAT (c)	Get status of all cards or (specified card). (Option 11C) See STAT (loop) and STAT l s c for possible responses. STAT 0 provides the status of TDS 0 and units 0-15 for card 0.	basic-1
STAT c d	Get status of specified DSL. (Option 11C) See STAT l s c d for possible responses.	bri-18

STAT c u — Get status of specified unit. (Option 11C) See STAT l s c u command for possible responses. — basic-1

STAT c u accepts units 0-15 as input for card 0.

STAT (appl) l — Get status of MISP loop and application. — bri-18

If appl = BRIL, the status of the BRI Line application is output. If appl = BRIT, the status of the BRI Trunk application is output.

Typical response is:

```
loop = MISP loop for non-Option 11C
mm DSBL nn BUSY
MISP lll : ENBL ACTIVATED timestamp
BRIL :  ENBL
BRIT :  ENBL
```

If the card has been manually disabled, the response is:

```
loop = MISP loop for non-Option 11C
DISABLED RESPONDING
MAN DSBL
```

If the card has been disabled by the system, the response is:

```
loop = MISP loop for non-Option 11C
DISABLED RESPONDING
SYS DSBL - aaa...a
```

Where `aaa...a` is the reason as follows:

- **a** `BOOTLOADING` = basecode is being downloaded to the MISP
- **b** `FATAL ERROR` = MISP has a serious problem
- **c** `OVERLOAD` = MISP overload (card inoperable)
- **d** `RESET THRESHOLD` = too many resets (card inoperable)
- **e** `SELF TESTING` = card is performing self-test
- **f** `SELFTEST FAILED` = self-test failed
- **g** `SELFTEST PASSED` = successfully completed self-test
- **h** `SHARED RAM TEST FAILED` = MISP memory problem (card inoperable)
- **i** `STUCK INTERRUPT` = MISP hardware failure (replace card)

With the STAT BRIL or STAT BRIT option, the response is one of the following:

1. APPLICATION ENBL
2. APPLICATION NOT CONFIGURED
3. APPLICATION NOT RESPONDING
4. APPLICATION MAN DSBL (manually disabled)
5. APPLICATION SYS DSBL - aaa..a (system disabled)

Where: aaa...a is the reason as follows:

- **a** CLOSED = application is closed by basecode on the card
- **b** CLOSED ERR = error in closing the application
- **c** CORRUPTED = application is corrupted on the card
- **d** DOWNLOADING = application is being downloaded
- **e** ENABLED = application is in active state
- **f** INACTIVE = application is in inactive state
- **g** MNT BUSY = application is in maintenance busy state
- **h** WAIT DSBL = application is in process of being disabled
- **i** WAIT ENABLE = application is in process of being enabled
- **j** WAIT ERASE = application is being erased from the card
- **k** WAIT REMOVE = application is being removed from the card

STAT (l) — Give status of one or all loops. Response is one of the following: — basic-1

1. x BUSY, y DSBL = loop enabled with x channels busy and y channels disabled.
2. UNEQ = loop unequipped.
3. CTYF: l1 l2 = loop specified in STAT command is unable to receive data from loops l1, l2, etc. (i.e., continuity test failed in most recent LD 45 loop test). Probable fault in network card.
4. DSBL: NOT RESPONDING = loop disabled. Network card not responding. Card missing, disabled by switch or faulty.

5. DSBL: RESPONDING = loop disabled but the network card responds. loop may have been disabled due to:
   - **a** manual request (DISL)
   - **b** associated Peripheral Signaling card being disabled
   - **c** overload condition on associated loop

Note 1: Overload conditions are indicated by OVD messages. An attempt to enable a loop which was disabled due to overload may result in a recurrence of the overload condition: the system's service may be impaired for about 2 minutes.

Note 2: For MISP loops see STAT (appl) loop command.

STAT l s — Get idle, busy or disabled status of units on specified shelf. Displays number of units idle, busy, disabled and maintenance busy for the specified shelf. — basic-1

STAT l s c — Get status of any specified PE/IPE card. (e.g., digital line, analog, DTR, etc.) — bri-18

When getting the status of a card relating to a trunk error (STAT), the term RVSD may appear with the trunk information. RVSD indicates that the software has detected a reversed wired trunk for that unit.

When getting the status of a card where ACD sets are defined, the printout will include MSB LOG OUT, MSB LOG IN, LOG IN, OR LOG OUT, according to the ACD set state.

The output format for either a *S/T-Interface line card (SILC)* or an *U-Interface line card (UILC)* is:

For BRI trunks:

ll = UNIT ll = DSL/UNIT number on the card =

```
swstate type L2_state L1_state dch_state clk
(mode)
```

For BRI lines:

ll = UNIT ll = DSL/UNIT number on the card =

```
swstate type L2_state L1_state
```

If you are analyzing a *SILC* or an *UILC* card, Table 14 on page 153 lists and defines output fields and field responses. An output example can be found page 152.

The output format for an *ISDN BRI card* is: brsc/basic-19

loop = `UNIT sw_state DSL misp_state LC_state`

With ISDN BRI BRSC cards, the basecode and application status are output.

```
 APPLICATION     MAIN STATE     SUB STATE/ACTIVATION
    TIME

+--------------------+----------------------+-----------------------------------+
  BASECODE         ENABLED              xx/xx/xx x:xx
  BRI                ENABLED              xx/xx/xx x:xx

+--------------------+----------------------+-----------------------------------+
    IDLE 0           BUSY 0             DISABLED 8
MSBY 0
    TOTAL DSLS CONFIGURED 8
```

If you are analyzing an *ISDN BRI card* , see “STAT l s c d” command for a list of possible states.

Output Example:

```
00 = UNIT 00 = IDLE LINE   ESTA UP
01 = UNIT 01 = IDLE TRNK  ESTA UP          ESTA SREF (TE)
02 = UNIT 02 = IDLE LINE   ESTA DOWN
03 = UNIT 03 = UNEQ
04 = UNIT 04 = UNEQ
05 = UNIT 05 = UNEQ
06 = UNIT 06 = DSBL TRNK DSBL UNEQ RLS                (NT)
7 = UNIT 07 = DSBL TRNK DSBL UNEQ RLS               (TE)
```

Table 14: STAT l s c Field and Response Definitions

Field	Field Definition	Response	Response Definition
swstate	state of DSL/UNIT in software	IDLE	no active call
		BUSY	active with a call
		UNEQ	unequipped
		MBSY	maintenance busy
type	DSL type	LINE	BRI line
		TRNK	BRI trunk
L2_state	Layer 2 state of DSL/UNIT in MISP loadware	UNEQ	unequipped
		IDLE	no active call
		BUSY	active with a call
		MBSY	maintenance busy
		DSBL	disabled
		ESTA	D-channel link is established
		RLSU	D-channel link is released
		TEST	test mode
		RLBT	remote loop back
		APDB	application disabled
		MPDB	associated MISP disabled
		MPNR	associated MISP not responding
		UTSM	unable to send message to MISP
L1_state	Layer 1 state of line card	UNEQ	unequipped
		DOWN	Layer 1 is down
		LCNR	line card not responding
		UP	Layer 1 is up
		UNDN	undefined DSL state
		XPDB	Associated XPEC is disabled
		UTSM	unable to send message to MISP
dch_state	State of D-channel link in software	ESTA	D-channel link is established
		RLSU	D-channel link is released
		TEST-IDLE	test mode idle
		TEST-RLBT	test mode remote loop back
clk	Clock mode	DSBL	disabled
		PREF	primary reference
		SREF	secondary reference
mode	Layer 1 mode of DSL	NT	Network Termination
		TE	Terminal Equipment

STAT l s c d — Get status of specified Digital Subscriber Loop (0-7). — bri-18

When getting the status of an unit where ACD sets are defined, the printout will *not* include MSB LOG OUT, MSB LOG IN, LOG IN, OR LOG OUT, according to the ACD set state.

If SUPP package 131 is not equipped, Tthe output format is:

```
DSL sw_state misp_state lc_state B1 status
B2 status
```

If SUPP package 131 is equipped, the output format is:

```
DSL type: swstate L2_state L1_state dch_state
clk b1_state b2_state
```

Table 15 defines output fields. Table 16 on page 155 lists and defines possible responses. when SUPP package 131 *is not* equipped. Table 17 on page 156 lists and defines possible responses when SUPP package 131 *is* equipped.

Table 15
STAT l s c d Field Definitions

Field	Definition
sw_state	DSL software state
misp_state	DSL state on the MISP card
lc_state	DSL state on the BRI line card
swstate	State of DSL/UNIT in software
L2_state	Layer 2 state of DSL/UNIT in MISP loadware
L1_state	Layer 1 state of line card
dch_state*	State of D-channel link in software
clk*	Clock mode
b1_state	State of first B-channel
b2_state	State of second B-channel
* these fields are output only for BRI trunks	

Table 16
STAT l s c d Response Definitions: SUPP package 131 is not equipped

Response	Definition
APDB	MISP call application is disabled
BUSY	Call is active
DOWN	Link layer is not established
DSBL	DSL is disabled
ESTA	Link layer is established
IDLE	No active calls
LCNR	Line card is not responding
MBSY	DSL is in maintenance busy mode
MPDB	MISP is disabled
MPNR	MISP not responding or message is lost
NTAN	DSL is not assigned to a MISP
RLS	Link layer is not established
UNDN	DSL is in an undefined state
UNEQ	Unequipped
UP	Link layer is established
UTSM	CPU is unable to send message to MISP or line card
XTDB	Superloop is disabled
XPDB	Controller is disabled

Table 17: STAT l s c d Response Definitions when SUPP package 131 is equipped

Field	Response	Definition
type	LINE	BRI line
	TRNK	BRI trunk
swstate	IDLE	no active call
	BUSY	active with a call
	UNEQ	unequipped
	MBSY	maintenance busy
L2_state	UNEQ	unequipped
	IDLE	no active call
	BUSY	active with a call
	MBSY	maintenance busy
	DSBL	disabled
	ESTA	D-channel link is established
	RLSU	D-channel link is released
	TEST	test mode
	RLBT	remote loop back
	APDB	application disabled
	MPDB	associated MISP disabled
	MPNR	associated MISP not responding
	UTSM	unable to send message to MISP
L1_state	UNEQ	unequipped
	DOWN	Layer 1 is down
	LCNR	line card not responding
	UP	Layer 1 is up
	UNDN	undefined DSL state
	XPDB	associated XPEC is disabled
	UTSM	unable to send message to MISP
dch_state	ESTA	D-channel link is established
	RLSU	D-channel link is released
	TEST-IDLE	test mode idle
	TEST-RLBT	test mode remote loop back

(Part 1 of 2)

Table 17: STAT l s c d Response Definitions when SUPP package 131 is equipped

Field	Response	Definition
clk	DSBL	disabled
	PREF	primary reference
	SREF	secondary reference
b1_state	UNEQ	unequipped
	BUSY	active with a call
	DSBL	disabled
	MBSY	maintenance busy
	IDLE	no active call
b2_state	UNEQ	unequipped
	BUSY	active with a call
	DSBL	disabled
	MBSY	maintenance busy
	IDLE	no active call

(Part 2 of 2)

STAT l s c u	Get status of specified unit. Table 18 on page 158 defines possible responses to STAT lscu.	basic-1

Table 18
STAT lscu Responses

Type	Response	Definition
Normal	IDLE	Idle
	IDLE REGISTERED	i2004 that has registered
	UNREGISTERED	i2004 is configured in the system but not registered
	MBSY	Maintenance busy
	DSBL	Disabled
	DSBL	Virtual terminal disabled by Server
	DSBL REGISTERED	i2004 that has registered but is disabled
	UNREGISTERED	i2004 is configured but not registered and in disabled state
	BUSY	In use by call processing
	BUSY BARRED	Barring is applied to trunk with BARA Class of Service
	UNEQ	Terminal not defined in software
	L500	Line is 500/2500 type
	MBCS	Maintenance set
	BCS	Normal SL-1 telephone
	TRK	Trunk
	ATTN	Attendant console
	DTR	Digitone Receiver
	PWR	Console power unit
Abnormal	CARD x DSBL (OVD)	Card x disabled due to overload
	DND xxx xxx	Do Not Disturb feature is active
	SHELF DSBL(OVD)	Shelf disabled due to overload
	SIG FAULT	Outgoing signal fault detected on PS card under examination.
	WARNING: CRPTR NOT IN RANGE	TN's data is corrupted. Check BUG messages relating to the TN.
Responses caused by invalid equipment choice:		
	EXT DSBL	Extender disabled
	LOOP NOT TERM	Loop is not a terminal loop
	LOOP UNEQ	Loop is unequipped
	SHELF UNEQ	Shelf is unequipped
	SHELF UNEQ W/PBX CARDS	No 500 cards on shelf
	CARD UNEQ	Card is unequipped
	CARD NOT PBX	Card is not a PBX card
	UNIT UNEQ FOR MW	Unequipped for Message Waiting
	PER UNEQ	PS card is unequipped
	UNIT UNEQ	Unit is unequipped

STAT NCAL <c DSL#> qsig gf-22

List all current call-independent connections on a given BRIT DSL. (Option 11C)

The response format is as follows:

- NCALL CONN ID: a number in the range of 1-9999 that identifies the call independent connection on a given DSL
- CREF: call reference number in HEX identifying independent connection
- STATE: current state of all call-independent connections (IDLE, CONN_REQ, CONN_EST)
- TIME: year month day hour:minute:second (the time when call independent connection request is made)
- APPL: applications using the call-independent connection (e.g., NACD, NMS,...)
- ORIG: originator
- DEST: destination

Note that the command format for an Option 11C is:

STAT NCAL <c 0 0 DSL#>

STAT NCAL <l s c DSL#> qsig gf-22

List all current call-independent connections on a given BRIT DSL.

The response format is as follows:

- NCALL CONN ID: a number in the range of 1-9999 that identifies the call independent connection on a given DSL
- CREF: call reference number in HEX identifying independent connection
- STATE: current state of all call-independent connections (IDLE, CONN_REQ, CONN_EST)
- TIME: year month day hour:minute:second (the time when call independent connection request is made)
- APPL: applications using the call-independent connection (e.g., NACD, NMS,...)
- ORIG: originator
- DEST: destination

To enter this command, QsigGF package 305 is required.

STAT NCAL <l s c DSL#> <conn_ID> qsig gf-22

List information pertaining to a specific call-independent connection (as defined by its connection ID)

The response format is as follows:

- NCALL CONN ID: a number in the range of 1-9999 that identifies the call independent connection on a given DSL
- CREF: call reference number in HEX identifying independent connection
- STATE: current state of all call-independent connections (IDLE, CONN_REQ, CONN_EST)
- TIME: year month day hour:minute:second (the time when call independent connection request is made)
- APPL: applications using the call-independent connection (e.g., NACD, NMS,...)
- ORIG: originator
- DEST: destination

To enter this command, QsigGF package 305 is required.

STAT NWK l Check status of network card with specified loop, where loop is the even or odd numbered loop on the network card. basic-1

STAT PER x Get status of PS card x. basic-1

Where:

- x = 0-15, Option 81C with Fiber Network Fabric fnf-25

If the PS card is disabled, the response is changed from DSBL to either:

1. DSBL: NOT RESPONDING = PS card x is either missing, faulty or disabled via the faceplate switch.
   - If there is a fault in the extender pair for the network shelf, the status of the PS card will also be: DSBL: NOT RESPONDING.
2. DSBL: RESPONDING = The PS card is disabled and responding to the CPU. The PS may have been disabled by manual request (DSPS) or the associated extender pair may have been manually disabled.

If neither of these conditions exists, the card may have been disabled because of an overload condition on the associated shelf. Check for OVD messages appearing in previous TTY output.

	An attempt to enable a PS card which was disabled because of an overload may result in a recurrence of the overload condition: the system's service may be impaired for approximately 2 minutes.	
STAT sl	Get current status of superloop and separate carriers on that superloop, based on data previously sent by the Carrier Interface F/W (LCIM). For each carrier, the following fields will be displayed: `S/W State, SPARE Status, NND Status, TSA` (Time Slot Availability) and CALS. `TTSA` = Number of Traffic Timeslots currently available for voice and data calls out of a possible: 21 for T-1 and 27 for T-E. `SPARE Status` indicates whether the carrier is spared and which carrier it is spared in. `NND Status` indicates whether new data calls are disallowed on the timeslots being transmitted by the carrier.	rem_ipe-21
STIF L PDL2 l s c	Displays link status for SAPI 16 interface of BRSC l s c for MPH on loop L.	bri-19
STIF L PDL2 L1	Displays the link status for SAPI 16 interface of BRIL L1 for MPH on loop L.	bri-19
STIF l PDNI y	Displays the link status for interface Y for PDNI. Where: Loop Y = 1-3	bri-19
STIF l s c DSL DCH x	Displays the link status for B-channel X for the DSL l s c D. Where: BCH stands for B-channel and X = 1–2.	bri-19
SUPL (l)	Print data for all or specified superloop(s). Where: • loop = 0-252 and must be a superloop (multiples of 4), Option 81C with Fiber Network Fabric	xpe-15 fnf-25

TRK l s c u c u	Seize specified trunk for outpulsing. Option 11C format Command is valid at a maintenance telephone only. The specified trunk is connected to the maintenance telephone and a test call may be performed on the trunk. When the test call is completed, access sequence SPRE 91 must be redialed to use the maintenance telephone to input more commands.	basic-1
XNTT l	Do self-test of Network card for specified superloop. The Network card must be disabled before the self-test. Where: • loop = 0-252 and must be a superloop (multiples of 4), Option 81C with Fiber Network Fabric	xpe-15 fnf-25
XPCT x	Do self-test on Controller x. The NT8D01 Controller must be disabled before the self-test.	xpe-15
XPEC (x)	Print data for all or specified Controller(s).	xpe-15

LD 33: Peripheral Equipment Diagnostic for 1.5 Mb/s RPE and Fibre Remote IPE

This module contains commands to perform diagnostic tests of 1.5 Mb/s remote peripheral equipment and fibre remote intelligent peripheral equipment.

Note: Program 33 is not supported on Option 11C systems.

1.5 Mb/s RPE diagnostic

The 1.5 Mb/s Remote Peripheral Equipment Diagnostic (RPD) is loaded manually or as one of the daily routines. It should be included in the daily routines for any system having Remote Peripheral Equipment (RPE).

Program operation during daily routines

When loaded as part of the daily routines, the program will, for each RPE loop in the system:

- reset internal counts of carrier failures which are used to determine whether carriers should be automatically re-enabled if a temporary carrier fault occurs
- test the connection memory on the local network card
- test the signaling channel to the Local Carrier Buffer (LCB) card
- test the connection memory of the Remote Peripheral Switch (RPS) card
- test the continuity of the speech path to the remote site using all idle channels
- switch the primary carrier function from the current primary carrier to the other one, then repeat the above tests

If faults are detected during the above tests, the primary carrier is selected to give the greatest number of working speech timeslots, provided that the signaling channel works on this carrier.

Purpose of 1.5 Mb/s RPE commands

When loaded manually, the program may be used to:

- conduct a test of a specific RPE loop, similar to the automatic tests
- enable or disable a RPE loop, or either carrier associated with a RPE loop
- enable or disable the automatic carrier status monitoring function on a RPE loop
- give timeslot numbers of speech channels which could not be successfully transmitted by a specified carrier
- switch the primary carrier function from one carrier to the other
- obtain the status of RPE loops and/or carriers
- obtain a list of equipped RPE loops
- clear minor alarms and the maintenance display on the active CPU

Speech timeslots used by each carrier

If primary carrier = 0

- Speech channels carried by primary carrier = 4, 5, 6, 7, 10, 11, 12, 13, 14, 15, 20, 21, 22, 23, 26, 27, 28, 29, 30, 31
- Speech channels carried by secondary carrier = 2, 3, 8, 9, 16-19, 24, 25

If primary carrier = 1

- Speech channels carried by primary carrier = 2, 3, 4, 5, 8, 9, 10, 11, 16, 17, 18, 19, 20, 21, 24, 25, 26, 27, 28, 29
- Speech channels carried by secondary carrier = 6, 7, 12, 13, 14, 15, 22, 23, 30, 31

Fibre Remote IPE diagnostic

The craftsperson may complete any of the following Fibre Remote IPE maintenance operations:

- Enable or disable optical packlets.
- Manually invoke protection switching, at the local or remote side.
- Query status of cards and optical packlets.
- Conduct the loop-back test on the optical receiver-transmitter (EOI) to determine the source of the fault as being the optical fibre span or Fibre remote equipment.
- Run loopback test and continuity tests on optical interface.

Midnight routine operation

Overlay 33 can be scheduled to run at midnight if included in midnight routines. The following actions take place during midnight operation:

- Send Time of Day message to loadware (L/W).
- Print performance monitoring report.
- Run non-service-impacting test on the standby link.
- Run MNSN and MNSP commands to cause protection switching. When these commands are run, continuity tests check both links alternately.

Fiber Network Fabric

The Fiber Network Fabric extends and enhances the 5-group network architecture to 8 non-blocking (inter-group) Network groups, with a resulting expansion in network capacity to 8k timeslots available for Intergroup traffic. This is achieved by using OC-12 SONET rings, and adding additional network and PE shelves, cards and cables and software changes to allow using the expanded network capacity. This expansion increases the number of available loops from 160 to 256. This applies to the Option 81C only.

Basic commands for 1.5 Mb/s RPE

CDSP	Clears the maintenance display on active CPU to 00 or blank
CMIN	Clear the minor lamp on a system basis
CMIN ALL	Resets minor alarm indication on attendant consoles for all customers
DISC loop c	Disable carrier c on RPE loop
DISI loop c	Disable carrier c on RPE loop when idle
DISL loop	Disable specified RPE loop
DISM loop	Disable carrier status monitoring on RPE loop
END	Abort current command
ENLC loop c	Enable carrier c on RPE loop
ENLL loop	Enable RPE loop
ENLM loop	Enable carrier status monitoring on RPE loop
LDIS loop c	List all speech channels that failed continuity test on RPE loop carrier c
LOOP loop	Perform various tests on RPE loop
LRPE	List all equipped RPE loops
NCAR loop	Get number of “carrier status change” messages for RPE loop
SCAR loop	Switch primary carrier on RPE loop
STAT	Get number of busy channels on specified carrier in the active DISI request
STAT loop	Get status of RPE loop
STAT loop ALL	Get status of the RPE loop, carriers and RPS card
STAT loop c	Give status of carrier c on RPE loop
STAT loop RPS x	Get status of RPS card x on specified RPE loop

Basic commands for Fibre Remote IPE

AHIN sl	Print all history file (log file) of Fibre superloop sl
AHIP pc	Print all history file of Fibre Peripheral Controller pc
CDSP	Clears the maintenance display on active CPU to 00 or blank
CMIN	Clear the minor lamp on a system basis
CMIN ALL	Resets minor alarm indication on attendant consoles for all customers
CLPM sl	Clears all performance monitoring counters of Fibre superloop sl (FNET) and its associated FPEC
DSOP sl PRI	Disable optical link of Fibre superloop sl, link Primary
DSOP sl SEC	Disable optical link of Fibre superloop sl, link Secondary
ENOP sl PRI	Enable optical link of Fibre superloop sl, link Primary
ENOP sl SEC	Enable optical link of Fibre superloop sl, link Secondary
FDEF sl	Query default MMI mode on FNET and FPEC of Fibre superloop sl
FNET ALL	Print current status of all Fibre superloops
FNET sl	Print status of Fibre superloop sl (FNET) and its optical packlets
FNTT sl	Test specified Fibre superloop sl (FNET)
FPCT pc	Test specified Fibre peripheral controller pc (FPEC)
FPEC pc	Print status of Fibre peripheral controller pc (FPEC) and its optical packlets
FSTA sl	Print the transmission test status of Fibre superloop sl
FSTP sl	Stop the transmission test. Print test status of Fibre superloop sl.
FTST sl test (h/m/s)	Perform a transmission test of Fibre superloop sl for time h/m/s
MNSN sl	Manual switch on Fibre superloop sl (FNET)
MNSP sl	Manual switch on Fibre peripheral controller pc (FPEC)
NHIN sl	Print new history file of Fibre superloop sl (FNET)
NHIP pc	Print new history file of Fibre peripheral controller pc (FPEC)
PRPM sl	Print performance monitoring report for Fibre superloop sl (FNET) and its associated FPEC
SDEF sl LOC	Set default MMI mode on FNET and FPEC of Fibre superloop sl: MMI mode (Local)
SDEF sl REM	Set default MMI mode on FNET and FPEC of Fibre superloop sl: SL-1 mode (Remote)

Alphabetical list of commands

Command	Description	Pack/Rel
AHIN sl	Print all history file (log file) of Fibre superloop sl.	rem_ipe-22
AHIP pc	Print all history file of Fibre Peripheral Controller pc.	rem_ipe-22
CDSP	Clears the maintenance display on active CPU to 00 or blank.	rpe-1
CLPM sl	Clears all performance monitoring counters of Fibre superloop sl (FNET) and its associated FPEC.	rem_ipe-22
CMIN	Clear the minor lamp on a system basis.	alrm_filter-22
CMIN ALL	Resets minor alarm indication on attendant consoles for all customers.	rpe-1
DISC loop c	Disable carrier c on RPE loop. Any active calls using this carrier will be disconnected. Where: • loop = 0-255, Option 81C with Fiber Network Fabric	rpe-1 fnf-25
DISI loop c	Disable carrier c on RPE loop when idle. Disables the carrier as soon as it has become idle. The number of channels still busy on the carrier may be checked using the STAT command. The message RPD018 indicates that the disable operation is complete. Where: • loop = 0-255, Option 81C with Fiber Network Fabric	rpe-1 fnf-25
DISL loop	Disable specified RPE loop. Any active calls on the loop are disconnected and line transfer occurs at the remote end.	rpe-1
DISM loop	Disable carrier status monitoring on RPE loop. Carrier failures are not detected while this command is in effect. The command is canceled by the ENLM or ENLL commands.	rpe-1

DSOP sl PRI	Disable optical link of Fibre superloop sl, link Primary. If that link is active, protection switching occurs. If protection switching is not available, and the FNET is enabled, the command is refused**.**	rem_ipe-22
DSOP sl SEC	Disable optical link of Fibre superloop sl, link Secondary. If that link is active, protection switching occurs. If protection switching is not available, and the FNET is enabled, the command is refused.	rem_ipe-22
END	Abort current command. If no command is in progress, the active DISI command (if any) is canceled.	rpe-1
ENLC loop c	Enable carrier c on RPE loop. If the operation is successful, OK is output. Where: • loop = 0-255, Option 81C with Fiber Network Fabric	rpe-1 fnf-25
ENLL loop	Enable RPE loop. Implies ENLM also. If the operation is successful, OK is output. If the loop is already enabled, RPD007 is output.	rpe-1
ENLM loop	Enable carrier status monitoring on RPE loop. Where: • loop = 0-255, Option 81C with Fiber Network Fabric	rpe-1 fnf-25
ENOP sl PRI	Enable optical link of Fibre superloop sl, link Primary. The command fails if the packet is not physically there.	rem_ipe-22
ENOP sl SEC	Enable optical link of Fibre superloop sl, link Secondary. The command fails if the packlet is not physically there.	rem_ipe-22

FDEF sl	Query default MMI mode on FNET and FPEC of Fibre superloop sl. The system response is:
	`FNET: L/R`
	`FPEC: L/R`
	Where: L = local and R = remote
		rem_ipe-22

FNET ALL	Print current status of all Fibre superloops. The same as FNET sl but repeated for all Fibre superloops in the system.	rem_ipe-22

FNET sl — Print status of Fibre superloop sl (FNET) and its optical packlets. The first line prints the general status of the card and includes: — rem_ipe-22

1. enable/disable status (known by Software)
2. PLL status
3. NNDC (indicates that new data calls are disallowed on this superloop)

The next two lines print the status of the packlets:

1. enable/disable status (known by Firmware)
2. activity (if selected as active for incoming voice/data)
3. ALM_LVL - alarm level
4. ALM_EOI - alarm Electro-Optical Interface (EOI)

Presented below is an example of this general Output format, showing possible values. Bold characters indicate fixed titles.

FNET: n	enabled/disabled	locked/unlocked	NNDC/ <blank>	
PACKLETS:	**F/W State**	**Activity**	**ALM_LVL**	**ALM_EOI**
Primary:	enabled disabled transmission tested	RCV idle	unequipped S.F. S.D. No alarm	Rx Tx Rx Tx No alarm
Secondary:	enabled disabled transmission tested	RCV idle	unequipped S.F. S.D. No alarm	Rx Tx Rx Tx No alarm

Where:

1. unequipped = the optical packlet is physically absent. Firmware treats this as Signal Fail.
2. S.F. = Signal Fail = Out of service. Loadware either switches to the other link or declares “No active link” if Protection Switching (PS) was not possible.
3. S.D. = Signal Degradation = Deteriorated performance. Firmware either switches to the other link, or else the data calls are disallowed if Protection Switching (PS) was not possible. Software handles this state as NNDC.
4. Rx = Receiver alarm
5. Tx = Transmitter alarm

FNTT sl	Test specified Fibre superloop sl (FNET). The Firmware performs a self-test of hardware components and reports results to software. Optical packlets, if present, are also tested. If the FNET is enabled, only the non-active packlet is tested without affecting service. The response may be: `TEST PASSED or TEST FAILED REASON <reason#>`	rem_ipe-22
FPCT pc	Test specified Fibre peripheral controller pc (FPEC). The Firmware performs a self-test of hardware components and reports results to software. Optical packlets, if present, are also tested. If the FPEC is enabled, only the non-active packlet is tested without affecting service. The response may be: `TEST PASSED or TEST FAILED REASON <reason#>`	rem_ipe-22
FPEC pc	Print status of Fibre peripheral controller pc (FPEC) and its optical packlets. The first line prints the general status of the card. The next two lines print the status of the packlets. See FNET description for more detail.	rem_ipe-22
FSTA sl	Print the transmission test status of Fibre superloop sl.	rem_ipe-22
FSTP sl	Stop the transmission test. Print test status of Fibre superloop sl.	rem_ipe-22

FTST sl test (h/m/s) rem_ipe-22

Perform specified transmission test of Fibre superloop sl for time tm. Where:

1. test = 1 for FNET primary packlet ; 2 for FPEC primary packlet ; 3 for FNET secondary packlet ; 4 for FPEC secondary packlet
2. tm = H/M/S = test duration. This field is optional. The duration can be either:
   - **a** H for hours (1-24)
   - **b** M for minutes (1-255)
   - **c** S for seconds (1-255)

If a duration is not entered, then Firmware performs a quick test and reports the results to software. The system response will then be `TEST SUCCESS or TEST FAILED`.

If duration is entered, then firmware starts testing and sends an acknowledge message to software. The system response will be `TEST STARTED`.

These transmission tests can only be executed on the standby or disabled link.

LDIS loop c List all speech channels that failed continuity test on RPE loop, carrier c. rpe-1

If no channels failed, response is `NONE`. The response is based on the results of the most recent tests (via the LOOP command) of the carrier.
Where:

- loop = 0-255, Option 81C with Fiber Network Fabric fnf-25

LOOP loop	Perform various tests on RPE loop. Performs the following tests: 1. tests idle timeslots of network connection memory 2. tests signaling channel to the LCB card 3. tests idle timeslots of the RPS connection memory 4. tests speech continuity to remote site, using idle channels If all tests pass, system response is `OK`. Any connection memory or channel faults detected results in the affected channel being disabled. To completely check the loop, this command may be run twice, once with each carrier being primary, by using the SCAR command between tests. This command does not test signaling to PE cards on the loop. To test signaling, use LD 30 or LD 45. Where: • loop = 0-255, Option 81C with Fiber Network Fabric	rpe-1

	A large number of messages received (particularly on one carrier only), may indicate a transient fault on the affected carrier.	
NHIN sl	Print new history file of Fibre superloop sl (FNET)	rem_ipe-22
NHIP pc	Print new history file of Fibre peripheral controller pc (FPEC)	rem_ipe-22
PRPM sl	Print performance monitoring report for Fibre superloop sl (FNET) and its associated FPEC.	rem_ipe-22
SCAR loop	Switch primary carrier on RPE loop. This command is allowed only if the current non-primary carrier is enabled, and no faults exist on the current non-primary carrier (which would reduce the number of working speech channels if it becomes the primary carrier).	rpe-1
SDEF sl LOC	Set default MMI mode on FNET and FPEC of Fibre superloop sl : MMI mode (Local)	rem_ipe-22
SDEF sl REM	Set default MMI mode on FNET and FPEC of Fibre superloop sl : SL-1 mode (Remote)	rem_ipe-22
STAT	Get number of busy channels on specified carrier in the active DISI request. If no DISI request is active, error code RPD022 is output.	rpe-1
STAT loop	Get status of RPE loop. Response will be one or more of the following: 1. `x BUSY, x DSBL` = number of busy/disabled speech channels on the loop. 2. `x NWK MEM FLTS` = number of speech channels disabled due to fault in connection memory of network. 3. `LCB DSBL` = carrier monitoring function of LCB card disabled 4. `CTYF: l1 l2` = cannot receive speech from loops l1, l2, etc., based on most recent test run by the background diagnostic (LD 45).	rpe-1

5. DSBL: RESPONDING = loop is disabled but can still communicate with the CPU. The loop may have been disabled manually, as the result of the disabling of some other card (e.g., associated Peripheral Signaling card) or by an overload condition. If the loop was disabled because of overload, the overload condition may recur if the loop is re-enabled.
6. DSBL: NOT RESPONDING = loop is disabled and cannot communicate with the CPU. The Network card may be missing or faulty, or not responding because of the removal or failure of other cards, e.g., CE extenders.

Where:

- loop = 0-255, Option 81C with Fiber Network Fabric fnf-25

STAT loop ALL — Get status of the RPE loop, carriers and RPS card. rpe-1

Response is:

```
x BUSY, y DSBL
CAR 0: x BUSY, y DSBL PRIME
CAR 1: x BUSY, y DSBL
RPS: x MEM FLTS
```

Where:

x BUSY, y DSBL = number of busy and disabled channels for the RPE loop and each carrier (CAR0 and CAR1).

PRIME = indicates which carrier is currently the primary one.

RPS: x MEM FLTS = number of faults in the memory connection of the RPS card.

STAT loop c — Give status of carrier c on RPE loop. rpe-1

Response is one or more of:

1. x BUSY, y DSBL = number of busy channels and number of channels having continuity failure on this carrier
2. PRIME = indicated carrier is currently the primary one.
3. DSBL = carrier is disabled.
4. LOOP DSBL = loop is disabled.

STAT loop RPS x rpe-1

Get status of RPS card x on specified RPE loop.

Results are based on the most recent tests. Response is one of:

1. `x MEM FLTS` = number of faults in the connection memory of the RPS card
2. `NOT RESPONDING` = card failed to respond (this message does not necessarily indicate a RPS fault)
3. `LOOP DSBL` = loop is disabled.

LD 34: Tone and Digit Switch and Digitone Receiver Diagnostic

This program tests circuit cards used in generating and detecting tones in the Meridian 1/Meridian SL-1 system. If loaded automatically in background or as part of the daily routines, it tests the hardware and performs fault detection and isolation. If invoked manually, commands can be issued to conduct the entire test or only certain parts of the test and to change card status.

The program tests the following circuit cards:

- Tone and Digit Switch (TDS)
- Flexible Tone and Digit Switch
- Digitone Receiver (DTR)
- Tone Detector
- Dial Tone Detector
- Extended Tone Detector (XTD)

TDS circuit card outpulsers and channels are checked for timing errors, memory faults and Digitone frequency accuracy. Digitone receivers are checked for response to all Digitone frequencies. Tones and outpulses are tested from a maintenance set.

Fiber Network Fabric

The Fiber Network Fabric extends and enhances the 5-group network architecture to 8 non-blocking (inter-group) Network groups, with a resulting expansion in network capacity to 8k timeslots available for Intergroup traffic. This is achieved by using OC-12 SONET rings, and adding additional network and PE shelves, cards and cables and software changes to allow using the expanded network capacity. This expansion increases the number of available loops from 160 to 256. This applies to the Option 81C only.

Basic commands

The following commands are applicable to all machines, except Option 11C systems. See the list of Option 11C commands for further information.

CDSP	Clear the maintenance display on active CPU to 00 or blank
CMAJ	Clear major alarm and reset power fail transfer
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c
DISD l s c	Disable the specified Meridian 1/Meridian SL-1 Tone Detector card
DISD l s c u	Disable specified Dial Tone Detector
DISL loop	Disable tone and digit loop
DISR l s c (u)	Disable specified DTR/MFR card or unit. Applies to DTR or XTD cards.
DISX l	Disable Conf/TDS/MFS card on loop l and l + 1
DTD l s c u	Test specified Dial Tone Detector unit. Applies to DTD and XTD cards.
DTR l s c (u)	Test specified Digitone receiver card or unit. Applies to DTR and XTD cards.
END	Stop execution of current command
ENLD l s c (u)	Enable Tone Detector on specified card or unit
ENLL loop	Enable tone and digit loop
ENLR l s c (u)	Enable the DTR/MFR card or unit. Applies to DTR and XTD cards.
ENLX l	Enable Conf/TDS/MFS card on loop l and l + 1
MFR	Test all Automatic Number Identification Feature Group D Multifrequency receiver units
MFR loop	Test all Automatic Number Identification Feature Group D Multifrequency receiver units on specified loop
MFR l s c (u)	Test Automatic Number Identification Feature Group D Multifrequency card or unit
SDTR l s c (u)	Get status of specified DTR/MFR or XTD card or unit.
STAD	List all disabled Tone Detector units
STAD l s c (u)	Get status of Tone Detector card or unit
STAT	List TNs of all disabled DTRs and MFRs
STAT loop	Get status TDS loop
TDET l s c (u)	Perform self-test and tone detection on specified card or unit
TDS loop	Test outpulsers and channels on specified loop

Option 11C commands

The following commands are applicable to Option 11C systems:

CDSP	Clear the maintenance display on active CPU to 00 or blank
CMAJ	Clear major alarm and reset power fail transfer
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c
DISR c (u)	Disable specified DTR/MFR card or unit
DISX c	Disable the TDS/MFS card
DISX l	Disable Conf/TDS/MFS card on loop l and l + 1
DTR c (u)	Test specified Digitone receiver card or unit
END	Stop execution of current command
ENLR c (u)	Enable DTR/MFR card or unit
ENLX c	Enable the TDS/MFS card
ENLX l	Enable Conf/TDS/MFS card on loop l and l + 1
MFR	Test all Automatic Number Identification (ANI) Multifrequency receiver units
MFR c	Test all MFR units on card c (Option 11C)
MFR c (u)	Test ANI Feature Group D Multifrequency card or unit (Option 11C)
SDTR	List all disabled DTR units
SDTR c (u)	Get status of specified DTR or XTD unit(s) on the CPU, SSTD, or XTD card
STAT	List TNs of all disabled DTRs and MFRs
STAT c	Show TDS status and number of disabled or busy tone transmitter channels.
TDS card	Test outpulsers and channels

Extended Tone Detector (XTD) commands

The following commands are applicable to the NT5K20 and NT5K48 XTD cards:

DISR l s c (u)	Disable the specified XTD card (or unit)
DTR l s c u	Test the specified XTD unit as a Digitone receiver unit
ENLR l s c (u)	Enable the specified XTD card (or unit)
SDTR	List Terminal Numbers (TN) of all disabled DTR units
SDTR l s c (u)	List the status of the specified XTD card (or unit)

Maintenance telephone commands

The following commands are used from a Maintenance telephone to test and hear the various tones. Both the command and the dial pad equivalents (in parantheses) are shown.

ANNx#loop## (266x#loop##) basic-6
Provides signals coming through source number x of KAPSCH Digital Announcer or Music Interface. Where loop = Tone and Digit Switch loop number)

BSY#loop## (279#loop##) basic-1
Provide busy tone from tone and digit loop.

C## (2##) Remove any active tone. basic-1

CMP#loop## (267#loop##) basic-1
Provide Camp-On tone from loop.

CUST#xx## (2878#xx##) basic-1
Test outpulsing for customer XX.

CWG#loop## (294#loop##) basic-1
Give call waiting tone from loop.

DIA#loop## (342#loop##) basic-1
Provide dial tone from tone and digit loop.

DRNG#loop## (3764#loop##) basic-1
Provide distinctive ringing from loop.

ITN#loop## (486#loop##) basic-1
Provide intrusion tone from loop.

JDRG#loop## (5374#loop##) basic-8
Provide distinctive ringing from loop.

JIDT#loop## (5438#loop##) basic-8
Provide interrupted dial tone from loop.

OPS#loop#x## (677#loop#x##) basic-1
Test outpulsing from Meridian 1/Meridian SL-1 to idle trunk.

ORD#loop## (673#loop##) basic-1
Provide override tone from loop.

OVF#loop## (683#loop##) basic-1
Provide overflow tone from loop.

PCRT#loop## (7278#loop##) pcr-7
Test the Paid Call Restriction (PCR) tone after the TABL command.

RBK#loop## (725#loop##) basic-1
Provide ringback tone from loop.

RNG#loop## (764#loop##) basic-1
Provide ring tone from loop.

SDL#loop## (735#loop##) basic-1
Give special dial tone from loop.

TABL#xx## (8225#xx##) basic-1
Select table number xx. If this command is not issued before any tone request command, then table 0 is assumed (Generic software with supplementary features).

TLP#loop## (857#loop##) basic-4
Provide tone to last party from the tone and digit loop.

TST#loop## (878#loop##) basic-1
Provide test tone from loop.

XCTT#loop#t#c## (9288#loop#t#c##) xct-15
Test tone and cadence number on Conference/TDS/MFS card.

Alphabetical list of commands

Command	Description	Pack/Rel
ANNx#loop## (266x#loop##)	Provides signals coming through source number x of KAPSCH Digital Announcer or Music Interface. Where: loop = Tone and Digit Switch loop number.	basic-6
BSY#L## (279#L##)	Provide busy tone from tone and digit loop L.	basic-1
C## (2##)	Remove any active tone.	basic-1
CDSP	Clear the maintenance display on active CPU to 00 or blank.	basic-1
CMAJ	Clear major alarm, reset power fail transfer and clear power fault alarm.	basic-1
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
CMIN c	Clear minor alarm indication on attendant consoles for customer c.	basic-1
CMP#loop## (267#loop##)	Provide Camp-On tone from loop.	basic-1
CUST#xx## (2878#xx##)	Test outpulsing for customer XX.	basic-1
CWG#loop## (294#loop##)	Give call waiting tone from loop.	basic-1
DIA#L## (342#L##)	Provide dial tone from tone and digit loop L.	basic-1
DISD l s c	Disable the specified Meridian 1/Meridian SL-1 Tone Detector card. Disables both units and lights the LED. (not supported on Option 11C)	basic-1
DISD l s c u	Disable specified Dial Tone Detector. If both units on the card are disabled, the LED lights. (not supported on Option 11C)	basic-1

DISL loop	Disable tone and digit loop. For Conference/TDS/MFS cards see note with ENLL command.	basic-1
DISR c (u)	Disable specified DTR/MFR or XTD card or unit. (Option 11C) This command applies to any units on card 0 regardless of its configured type.	xtd-8
DISR l s c (u)	Disable specified DTR/MFR or XTD card or unit.	xtd-8
DISX c	Disable the TDS/MFS card (Option 11C) This command disables TDS and all units (0-15) on card 0.	basic-22
DISX l	Disable Conf/TDS/MFS card on loop l and l + 1. Disables the entire combined Conference, Tone and Digit Switch, and MF Sender (NT8D17) card. Both the even numbered TDS/MFS loop and adjacent conference loop are disabled. loop = 0, 2, 4,. . . 254 The DISL and ENLL commands can be used on the even number loop for the TDS/MFS functions. However, this only prevents the loop from being used by software and does not affect the hardware status of the card. The DISX and ENLX commands are recommended. The ENLX command must be used if the DISX command was used to disable the card. This command can be used in LD 34, LD 38 and LD 46.	xct-15
DRNG#loop## (3764#loop##)	Provide distinctive ringing from loop.	basic-1
DTD l s c u	Test specified Dial Tone Detector unit. Applies to DTD and XTD cards. The Dial Tone Detector Test (DTDT) parameters must be configured in the configuration record (LD 17). Faulty DTD cards are disabled. Only 50% of all Dial Tone Detectors in the system may be disabled.	xtd-8
DTR c (u)	Test specified unit on Digitone receiver card or unit. (Option 11C) Where: • DTR units = 0-7 and 8-15.	basic-1

DTR l s c (u)	Test specified unit on Digitone receiver card or unit . This test may be performed while the card is enabled or disabled. If a disabled card passes the test, it is enabled automatically. This command also applies to the XTD.	xtd-8
END	Stop execution of current command.	basic-1
ENLD l s c (u)	Enable Tone Detector on specified card or unit. (not supported on Option 11C)	basic-1
ENLL l	Enable tone and digit switch loop l. For Conference/TDS/MFS cards the DISX and ENLX commands must be used whenever the faceplate switch of the card has been toggled. ENLL will software enable the card but the card will not be properly reset.	basic-1
ENLR c (u)	Enable the DTR/MFR or XTD card or specified unit. (Option 11C) This command applies to any units on card 0 regardless of its configured type.	xtd-8
ENLR l s c (u)	Enable the DTR/MFR or XTD card or specified unit.	xtd-8
ENLX c	Enable the TDS/MFS card This command enables TDS and alll units on card 0. For Card 0, this command initiates the card reset sequence: it downloads any parameters required for any configured MFC/MFE/MFK5/MFK6 units.	basic-22
ENLX l	Enable Conf/TDS/MFS card on loop l and l + 1. This command can be used in LD 34, LD 38 and LD 46. Enables the entire combined Conference, Tone and Digit Switch, and MF Sender (NT8D17) card. Both the even numbered TDS/MFS loop and adjacent conference loop are enabled. (loop = 0, 2, 4,. . . 254) The Conf/TDS card is not enabled automatically when it is inserted. Both loops must have been previously disabled. This command initiates card tests and the download of software.	xct-15

The DISL and ENLL commands can be used on the even number loop for the TDS/MFS functions. However, this only prevents the loop from being used by software and does not affect the hardware status of the card. The DISX and ENLX commands are recommended. The ENLX command must be used if the DISX command was used to disable the card.

Enabling more than 16 conference loops may cause the system to lock-up.

ITN#loop## (486#loop##) basic-1
Provide intrusion tone from loop.

JDRG#loop## (5374#loop##) basic-8
Provide distinctive ringing from loop.

JIDT#loop## (5438#loop##) basic-8
Provide interrupted dial tone from loop.

MFR	Test all Automatic Number Identification (ANI) Multifrequency receiver units. *For Option 11C*: this command includes card 0 MFR units	fgd-17
MFR c	Test all MFR units on card c (Option 11C) This command is applicable to card 0 units if they are MFR units	fgd-17
MFR c (u)	Test Automatic Number Identification (ANI) Multifrequency receiver card or unit. (Option 11C) This command is applicable to card 0 units if they are MFR units	fgd-17
MFR loop	Test all Automatic Number Identification (ANI) Multifrequency receivers on this loop.	fgd-17
MFR l s c (u)	Test Automatic Number Identification (ANI) Multifrequency receiver card or unit.	fgd-17

OPS#L#xx## (677 #L #xx##) basic-1

Test outpulsing from Meridian 1/Meridian SL-1 to idle trunk.

Outpulses from tone and digit loop l using the 10 or 20 pps outpulser to any idle trunk. This command connects the Meridian 1/Meridian SL-1 maintenance telephone to the trunk, permitting a test call on the trunk to be made using the outpulsers selected.

Where :

- xx = 10 or 20 representing the trunk class of service (LD 14 CLS = P10 or P20).

When the test call is completed, LD 34 must be reloaded by dialing SPRE + 91 before entering another command.

ORD#loop## (673#loop##) basic-1

Provide override tone from loop.

OVF#L## (683#L##)

Provide overflow tone from loop L. basic-1

PCRT#loop## (7278#loop##) pcr-7

Test the Paid Call Restriction (PCR) tone after the TABL command.

RBK#L## (725#L##)

Provide ringback tone from loop L. basic-1

RNG#L## (764#L##)

Provide ring tone from loop L. basic-1

SDL#loop## (735#loop##) basic-1

Give special dial tone from loop.

SDTR List the TNs of all disabled DTR/MFR or XTD units xtd-8

SDTR List all disabled DTR units basic-1

SDTR c (u) Get status of specified DTR or XTD card or unit. (Option 11C) basic-1

This command provides the status of all units 0-11 or 0-15 for card 0, regardless of configured type.

SDTR l s c (u)	Get status of specified DTR/MFR or XTD card or unit. If no parameters are entered, a list of all DTR/MFR TNs is output. If l s c is input, the status of the DTR/MFR units on the specified card are output. If l s c u is input, the status of the specified unit is output. Applies to DTR and XTD cards.	basic-1
STAD	List all disabled Tone Detector units. (not supported on Option 11C)	basic-1
STAD l s c (u)	Get status of Tone Detector card or unit. The status is either idle, busy, maintenance busy or not equipped.	basic-1
STAT	List TNs of all disabled Digitone Receivers. NONE is output if there are no disabled Digitone Receivers. *For Option 11C*: this command lists TNs of all disabled DTRs and includes all card 0 DTR/XTD units.	basic-1
STAT c	Show TDS status and number of disabled or busy tone transmitter channels. The STAT c command is used for the SSTD or CPU card.	basic-1
STAT loop	Get status TDS loop. The response may include OPS DSBL, indicating that the outpulsing function of the TDS card has been disabled.	basic-1
TABL#xx## (8225#xx##)	Select table number xx. If this command is not issued before any tone request command, then table 0 is assumed. (Generic software with supplementary features).	basic-1
TDET l s c (u)	Perform self-test and tone detection on specified card or unit. Performs the self-test and basic tone detection functions of the Meridian 1/Meridian SL-1 Tone Detector card or unit. This test may be performed while the card is enabled or disabled. If a disabled card passes the test, it is enabled automatically.	basic-1
TDS loop	Test outpulsers and channels on specified loop. Tests the outpulsers and channels of the tone and digit switch at loop. Outpulsers and tones are tested with a maintenance telephone (see commands from maintenance telephone).	basic-1

TDS card	Test outpulsers and channels on specified card. (Option 11C) When the Fast Tone and Digit Switch (FTDS) package 87 is equipped, it: • tests the outpulsers and channels of the tone and digit switch • outpulses 32 digits to a DTR, receives and stores the 32 digits from the DTR • tests that the time to outpulse 32 digits is within an acceptable range • compares the outpulsed 32 digits with those received and displays OK if they match	basic-1
TLP#loop## (857#loop##)	Provide tone to last party from the tone and digit loop.	basic-4
TST#loop## (878#loop##)	Provide test tone from loop.	basic-1
XCTT# L#t#c## (9288# L#t#c##)	Test tone and cadence number on Conference/TDS/MFS card. Where: • L = loop number of Conference/TDS/MFS (NT8D17) card • t = tone number • c = cadence number Refer to Flexible Tone and Digit Switch cards (553-2711-180) for the Conference/TDS tone and cadence numbers.	xct-15

LD 36: Trunk Diagnostic

The program allow trunks to be tested from either the Meridian 1/Meridian SL-1 site or a remote test center.

When testing from a Meridian 1/Meridian SL-1 site, individual trunks can be seized and a test call can be performed on the trunk in the normal manner.

When testing from a remote test center, a speech path must be set up to monitor the testing. This is accomplished by having the Meridian 1/Meridian SL-1 system call a directory number (DN) at the test center. This allows for dial tone, outpulsing and test tones to be monitored as tests are performed on other trunks by inputting commands at the TTY.

When a trunk is seized, the system prompts DN? for a DN. When the DN is input, the system calls that number automatically. When the call is answered a pure tone indicates the validity of the speech path. New trunks can be tested in the same manner with the maintenance telephone.

Note 1: When the French (FRTA) package 197 is enabled the units on CO trunks are not busied when they are disabled.

Note 2: When the Trunk Failure Monitor (TFM) package 182 is enabled, a failed trunk is displayed as BUSY. The enable/disable command does not enable or disable the failed trunk unit (it stays in the BUSY state).

When to use LD 36

Use LD 36 to:

- clear minor alarms and the maintenance display
- query threshold overflows for specific customers and routes
- reset thresholds for specific trunks
- query number of days since an incoming call was received for a specific customer and route or trunk
- query the trunk with the most number of idle days for a specific customer and route
- query trunks for which no disconnect supervision was received
- test Automatic Number Identification (ANI) trunks.

Note: When defined as a midnight routine, this program searches for trunks not used during the day and updates the total number of days the trunks have been idle.

Note: LD 36 can only be used for analog trunks, LD 60 must be used for diagnostics on digital trunks.

Trunk Error Thresholds

Resident programs monitor all calls and note apparent errors. The errors are accumulated and, if they occur consistently (exceed a threshold) on any trunk, a diagnostic message which identifies the trunk is output to the TTY or printer. The trunk should be suspected of trouble and a manual test should be performed on the trunk.

A record is kept in memory for each threshold violation error message. At any time, all trunks which have been identified by such a message may be listed by entering the command LOVF for any trunk route. Once an identifying message has been printed, it will not be repeated for that trunk until the RSET command is entered for that trunk or an initialization has occurred.

Potentially, a trunk may fail by not detecting incoming calls. The Meridian 1/Meridian SL-1 threshold mechanism cannot be used to detect such failures so the Meridian 1/Meridian SL-1 maintains for each trunk a count of the number of days since an incoming call was received on each trunk.

Thus, customer reports that indicate incoming calls are not being processed can initiate a check for the trunk which has been without an incoming call for the longest interval via the LMAX command. This trunk should be tested first.

It is possible to determine for each trunk the number of days since an incoming call was processed via the LDIC command. Subsequent trunk tests should be performed on those trunks showing the highest counts until the trouble is located.

Fiber Network Fabric

The Fiber Network Fabric extends and enhances the 5-group network architecture to 8 non-blocking (inter-group) Network groups, with a resulting expansion in network capacity to 8k timeslots available for Intergroup traffic. This is achieved by using OC-12 SONET rings, and adding additional network and PE shelves, cards and cables and software changes to allow using the expanded network capacity. This expansion increases the number of available loops from 160 to 256. This applies to the Option 81C only.

Basic commands (LD 36)

The following commands are applicable to all machines, except Option 11C systems. See the list of Option 11C commands for further information.

CALL	Set up monitor link with test center
CALL l s c u	Set monitor link with test center on this trunk
CDSP	Clear the maintenance display on active CPU to 00 or blank
CMIN	Clear the minor lamp on a system basis
CMIN ALL	Clear minor alarm indication on all attendant consoles
DISC l s c	Disable specified card for replacement
DISU l s c u	Disable specified unit
END	Terminate test in progress
ENLC l s c	Enable specified card
ENLU l s c u	Enable specified unit
LDIC c r	List number of days since last incoming call for specified customer and route
LDIC l s c u	List number of days since last incoming call on specified trunk
LMAX c r	List trunk with maximum idle days for specified customer and route
LNDS c r	List trunks with no disconnect supervision for specified customer and route
LOVF c r	List threshold overflows for specified customer and route
RAN c r	Test recorded announcement device for specified customer and route
RLS	Release trunk being tested
RSET l s c u	Reset thresholds for specified trunk
STAT l s c	Check card's software status
TRK l s c u	Seize trunk for testing
TPPM l s c u	Test the specified PPM trunk

Note: If a trunk unit is controlled by APNSS, the STAT command will display the status of the D-channel.

Option 11C commands

CALL	Set up monitor link with test center
CALL c u	Set monitor link with test center on this trunk
CDSP	Clear the maintenance display on active CPU to 00 or blank
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c
DISC card	Disable specified card for replacement
DISU c u	Disable specified unit
END	Terminate test in progress
ENLC card	Enable specified card
ENLU c u	Enable specified unit
LDID c r	List of days since last incoming call for specified customer (c) and route (r).
LMAX c r	List trunk with maximum idle days for specified customer and route
LNDS c r	List trunks with no disconnect supervision for specified customer and route
LOVF c r	List threshold overflows for specified customer and route
RAN c r	Test recorded announcement device for specified customer and route
RLS	Release trunk being tested
RSET c u	Reset thresholds for specified trunk
STAT card	Check card's software status
TRK c u	Seize trunk for testing

Alphabetical list of commands

Command	Description	Pack/Rel
CALL	Set up monitor link with test center. Same as the CALL l s c command except any PTRS trunk in the system can be selected. The CALL command must be terminated using the * command.	basic-1
CALL c u	Set monitor link with test center on this trunk. (Option 11C)	basic-1
CALL l s c u	This command sets up a monitor link (call) between the Meridian 1/ Meridian SL-1 and the test center on the trunk specified. The system prompts “DN?” for the directory number. When the PTRS directory number is entered, the system calls up that number automatically. When the call is answered, a pure tone indicates the validity of the link. This sequence can take up to 14 seconds on a trunk without answer supervision. The END command disconnects the call. The CALL l s c u command is not allowed when the diagnostic program is being run from a maintenance telephone. During the CALL command, On-Hook and Off-Hook signals from the maintenance telephone may initiate BUG105. When the monitor is enabled, a failed trunk is displayed as BUSY. The enable/disable command does not enable or disable the failed trunk unit (it stays in the BUSY state).	basic-1
CDSP	Clear the maintenance display on active CPU to 00 or blank.	basic-1
CMIN	Clear the minor lamp on a system basis.	alrm_filter-22
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
DISC card	Disable specified card for replacement. (Option 11C)	basic-1
DISC l s c	Disable specified card for replacement.	basic-1
DISU c u	Disable specified unit. (Option 11C)	basic-1
DISU l s c u	Disable specified unit.	basic-1

END	Terminate test in progress	basic-1
ENLC card	Enable specified card. (Option 11C)	basic-1
ENLC l s c	Enable specified card. If the card resides on a disabled shelf, its status is output and the enable is not performed. If the card has been disabled by an overload, the overload status is cleared.	basic-1
ENLU c u	Enable specified unit. (Option 11C)	basic-1
ENLU l s c u	Enable specified unit. If unit resides on a disabled shelf or card, then status is output and enable is not performed.	basic-1
LDIC c r	List number of days since last incoming call for specified customer (c) and route (r).	basic-1
LDID c r	Number of days since last incoming call for specified customer (c) and route (r). (Option 11C)	
LDIC l s c u	List number of days since last incoming call on specified trunk.	basic-1
LMAX c r	List trunk with maximum idle days for specified customer and route	basic-1
LNDS c r	List trunks with no disconnect supervision for specified customer and route. (trunks for which no disconnect supervision was received, i.e., terminating party not going On-Hook after a call)	basic-1
LOVF c r	List threshold overflows for specified customer and route. The overflows are set when the resident trunk monitor outputs a diagnostic	basic-1
RAN c r	Test recorded announcement device for specified customer and route.	basic-1
RLS	Release trunk being tested.	
RSET c u	Reset thresholds for specified trunk. (Option 11C)	basic-1
RSET l s c u	Reset thresholds for specified trunk.	basic-1

STAT card	Check card's software status. (Option 11C)	basic-1
STAT l s c	Check card's software status.	basic-1
TPPM l s c u	Test the specified PPM trunk. This command is not applicable when the Meridian 1/Meridian SL-1 is connected to 1 TR 6 international ISDN PRA.	basic-1
TRK c u	Seize trunk for testing. (Option 11C)	basic-1
TRK l s c u	Seize trunk for testing. Seizes the specified trunk for outpulsing and testing. If the command is issued from a maintenance telephone, dial tone is heard followed by outpulsing when the directory number is entered. If a trunk is to be seized for outpulsing and testing from a remote test center (not a maintenance telephone), a monitor link must first be set up using the CALL l s c u command. This must not be over the trunk to be tested. With the monitor link set up, the TRK l s c u command is input to select the trunk to be tested. The system then prompts with “DN?” and the directory number is input via the TTY. Normal speech path connections are made between the monitor link and the trunk being tested. Disconnect by entering END, by going On-Hook if an SL-1 telephone is used or by entering *. END also disconnects the monitor link. This command cannot be used to seize an ISL trunk.	basic-1

LD 37: Input/Output Diagnostic

This program is used to diagnose faults with disk units, Teletypewriter (TTY) or Serial Data Interface (SDI) cards. It provides enable, disable, status and test functions on these devices. Problems are indicated in IOD messages.

When LD 37 is defined as a daily routine, the program runs only once every 5 days and the primary storage device is thoroughly tested.

Only some of the commands in this Overlay are supported by Options 51C, 61C, and 81C. Refer to LD 137 for core commands.

Refer to LD 48 for I/O ports used with the following applications.

- Command and Status Links (CSL)
- Meridian Link
- Automatic Call Distribution (ACD)
- Integrated System Messaging Link
- Enhanced Serial Data Interface (ESDI) ports

Intelligent links (APL, HSL, LSL, and CMAC)

A warning message is generated each time an intelligent link is accessed (enable, disable, test). The message is generated for the following types of links:

APL
ACD-D (HSL/LSL)
CMAC (CMC)

The message allows the access to be aborted prior to performing the enable, test, etc. The warning appears in the following format:

DIS TTY N (link type) LINK (status) (y/n)

A response of y disables the hardware of the TTY regardless of the software status of the link. The status field provides the software status of the link. Valid status entries are:

BAD = software status is invalid
DOWN = link is down
MAINT = link is up and in maintenance mode
FULL = link is full
EMPTY = link is empty
NOT EMPTY= link still contains data

If LD 37 is run as part of the daily routines, an IOD075 message will be output on systems equipped with disk drives. This message should be disregarded.

D-channel Expansion

With the introduction of D-channel Expansion, new software allows the increase of D-channels past sixty-four. Instead of the Meridian 1 system having a maximum of 16 I/O addresses, the new software allows 16 physical I/O addresses (0 - 15) per network group for D-channels defined on MSDL. With this enhancement a response to the system response GROUP is required to inform the system of the desired network group.

Note: See "D-channel Expansion commands" in LD-48 or LD-96 for a complete description of these commands.

Basic commands

CDSP	Clear the maintenance display on active CPU to 00 or blank
CMIN	Clear the minor lamp on a system basis
CMIN ALL	Clear minor alarm indication on all attendant consoles
DIS MSG	Disable incoming message monitoring for the primary PMSI port.
DIS MSGO	Disable outgoing message monitoring for the primary PMSI port.
DIS MSI x	Disable Mass Storage Interface card x (not valid on Option 11C)
DIS PRT x	Disable printer x
DIS TTY x	Disable TTY x. (valid only for Card 0 Port 0 TTY on Option 11C systems)
END	Clear all test activity
ENL MSGI	Enable incoming message monitoring for the primary PMSI port.
ENL MSGO	Enable outgoing message monitoring for the primary PMSI port.
ENL MSI x	Enable Mass Storage Interface x
ENL PRT x	Enable printer x
ENL TTY x	Enable TTY x
MSI x	Test Mass Storage unit x (not valid on Option 11C)
MSI DATA	Test data validity in primary and backup device. (not valid on Option 11C)
MSI RW x	Test READ/WRITE ability of Mass Storage unit x. (not valid on Option 11C)
MSI SELF x	Perform self-test on MSI card x and report result .(not valid on Option 11C)
PRT x	Test printer x
SET MON 0	Set the monitoring display to be in alphanumeric format. This applies to the primary PMSI port.
SET MON 1	Set the monitoring display to be in hexadecimal format. This applies to the primary PMSI port.
STAT	Provide status of all input/output devices in system
STAT LINK	Provide status of all CDR links
STAT LINK x	Provide status of CDR data link x
STAT MON	Get the monitoring status for the primary PMSI port. This command displays the status of the message monitoring for the primary port. For example, if MSGI, MSGO, and SET MON 0 are enabled, the display would be as follows. MSGI:ON MSGO: ON ALPH
STAT MSI	Provide status of all MSI cards
STAT MSI x	Provide status of MSI card x

STAT PRT	Provide status of all printers in system
STAT PRT x	Provide status of printer x
STAT TTY	Provide status of all TTY devices in system This command enables you to get the status of the primary PMSI I/O port, and the Single Terminal Access (STA) administration terminal.
STAT TTY x	Provide status of TTY x This command also provides the status of the primary PMSI port.
STAT XSM	Provide status of the system monitor
TTY x	Test TTY x

Multipurpose Serial Data Link (MSDL) commands

The MSDL provides 4 ports for ISDN Primary Rate D-channel (DCH) and Application Module Link (AML).

The MSDL commands are listed below, **x** is the MSDL device number (defined by prompt DNUM in LD 17). These commands are provided in Link Diagnostic (LD 48) and D-channel Diagnostic (LD 96).

DIS MSDL x (ALL)	Disable MSDL device x (card)
ENL MSDL x (ALL, FDL)	Enable MSDL device x (card, Forced Download)
RST MSDL x	Reset MSDL device x
SLFT MSDL x	Invoke self-test for MSDL device x
STAT MSDL (x) (FULL)	Get status of MSDL card (x) (additional information)

Note: See "Alphabetical List of commands" in LD 48 for a complete description of these commands.

Alphabetical list of commands

Command	Description	Pack/Rel
CDSP	Clear the maintenance display on active CPU to 00 or blank.	basic-1
CMIN	Clear the minor lamp on a system basis.	alrm_filter-22
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
DIS MSG	Disable incoming message monitoring for the primary PMSI port.	pms-19
DIS MSGO	Disable outgoing message monitoring for the primary PMSI port.	pms-19
DIS MSI x	Disable Mass Storage Interface card x.	basic-1
DIS MSDL x (ALL)	Disable MSDL device x	
DIS PRT x	Disable printer x.	basic-1
DIS TTY x	Disable TTY x. Only valid for Card 0 Port 0 TTY on Option 11C systems.	basic-1
END	Clear all test activity.	basic-1
ENL MSGI	Enable incoming message monitoring for the primary PMSI port.	pms-19
ENL MSGO	Enable outgoing message monitoring for the primary PMSI port.	pms-19
ENL MSI x	Enable Mass Storage Interface card x.	basic-1
ENL MSDL x (ALL, FDL)	Enable MSDL device x	
ENL PRT x	Enable printer x.	basic-1
ENL TTY x	Enable TTY x.	basic-1

MSI x	Test Mass Storage unit x. This command runs the MSI DATA, MSI RW x and MSI SELF x tests.	basic-1
MSI DATA	Test data validity in primary and backup device.	basic-1
MSI RW x	Test READ/WRITE ability of Mass Storage unit x.	basic-1
MSI SELF x	Perform self-test on MSI card and report result.	basic-1
PRT x	Test printer x. Same as TTY test except that no keyboard input is expected and END command is not required. Where: * denotes that the printer is not yet available	basic-1
RST MSDL x	Reset MSDL device x	
SET MON 0	Set the monitoring display to be in alphanumeric format. This applies to the primary PMSI port.	pms-19
SET MON 1	Set the monitoring display to be in hexadecimal format. This applies to the primary PMSI port.	pms-19
SLFT MSDL x	Invoke self-test for MSDL device x	
STAT	Provide status of all input/output devices in system.	basic-1
STAT LINK	Provide status of all CDR links.	basic-1
STAT LINK x	Provide status of CDR data link x.	basic-1
STAT MON	Get the monitoring status for the primary PMSI port. This command displays the status of the message monitoring for the primary port. For example, if MSGI, MSGO, and SET MON 0 are enabled, the display would be as follows. `MSGI:ON MSGO: ON ALPH`	pms-19
STAT MSDL (x [FULL])	Get MSDL status	
STAT MSI	Provide status of all MSI cards.	basic-1
STAT MSI x	Provide status of MSI card x associated with the active CPU.	basic-1

STAT PRT	Provide status of all printers in system.	basic-1
STAT PRT x	Provide status of printer x.	basic-1
STAT TTY	Provide status of all TTY devices in system. This command enables you to get the status of the primary PMSI I/O port, and the Single Terminal Access (STA) administration terminal.	basic-1
STAT TTY x	Provide status of TTY x. This command also provides the status of the primary PMSI port.	basic-1
STAT XSM	Provide status of the system monitor. If there are no error conditions, PWR000 is output. Otherwise, the appropriate PWR messages are output.	xpe-15

TTY x	Test TTY x. Response is:
	`ABCDEFGHIJKLMNOPQRSTUVWXYZ`
	`0123456789"#$%*!&()<>—.:,.? READY FOR INPUT`
	Anything entered on the keyboard will be echoed until END is input.
		basic-1

LD 38: Conference Circuit Diagnostic

This program is used to detect and isolate circuit faults on the conference equipment in the system.

LD 38 can detect problems on the conference circuit such as:

- channel faults on the network card which interfaces a conference card to the system
- channel faults on the conference card
- conference faults associated with conferee group numbers
- switching faults controlling the attenuation feature.

The program is used to

- enable a specific conference card
- disable a specific conference card
- check status of channels and conferee groups
- clear alarms and displays

The program allows complete manual control in establishing a test conference, thus allowing the user to listen for noise and distortion. This includes:

- selection of a specific conference card
- selection of a specific conferee group
- stepping through all free channels and groups with special test conference.

Some commands are not valid on Option 11C systems, since the conference circuits are always enabled.

Note: Loops 29 and 30 are on the CPU/CONF card and loop 31 is on the Expansion Cabinet Data Cartridge (for Option 11C only).

Fiber Network Fabric

The Fiber Network Fabric extends and enhances the 5-group network architecture to 8 non-blocking (inter-group) Network groups, with a resulting expansion in network capacity to 8k timeslots available for Intergroup traffic. This is achieved by using OC-12 SONET rings, and adding additional network and PE shelves, cards and cables and software changes to allow using the expanded network capacity. This expansion increases the number of available loops from 160 to 256. This applies to the Option 81C only.

Basic commands

CDSP	Clears the maintenance display on active CPU to 00 or blank
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c
CNFC loop	Test conference loop
CNFC MAN loop g	Set up for manual conference on conference group g
CNFC STEP	Ready TTY for testing conferee groups
DISL loop	Disable conference loop
DISX loop	Disable Conf/TDS/MFS card on loop and loop - 1 (not valid on Option 11C)
END	Abort all current test activity
ENLL loop	Enable conference loop
ENLX loop	Enable Conf/TDS/MFS card on loop and loop - 1 (not valid on Option 11C)
LCNF loop	List busy and disabled conferee groups on specified loop
STAT loop	Provide status of conference card loop
STAT c u	List conference card and group used by specified TN. (Option 11C)
STAT l s c u	List conference card and group used by specified TN.

Alphabetical list of commands

Command	Description	Pack/Rel
CDSP	Clears the maintenance display on active CPU to 00 or blank.	basic-1
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
CMIN c	Clear minor alarm indication on attendant consoles for customer c.	basic-1
CNFC loop	Test conference loop. Tests conference loop for channel, group and switching faults. ***Note:*** Both the conference loop and the adjacent TDS/MFS loop must be enabled to run the conference test.	basic-1
CNFC MAN loop g	Set up for manual conference on conference group g. Only one manual conference is be allowed at a time. The conference group range is 1-15. After this command, any telephone dialing SPRE 93 enters the conference, where SPRE is the special service prefix for the system. Going on-hook from that telephone takes it out of the conference. If going On-Hook causes the conference to go from a three-party to a two-party call processing may remove all conference equipment and establish the remaining two parties as a normal call. The END command, which normally removes all telephones in the manual conference, will no longer affect these two telephones, as they are no longer using the conference card. If the CNFC MAN command is entered from a maintenance set, the telephone automatically becomes part of the manual conference.	basic-1
CNFC STEP	Ready TTY for testing conferee groups. Readies the TTY into a special command mode for testing various channels and conferee groups audibly, using two telephones: one to monitor and one to act as a signal source. The CNFC MAN command should have been used previously to set up the two-party conference. Entering C on the command input device will step the conference on to the next available channel.	basic-1

	Entering G will step to the next available conferee group. Entering an asterisk (*) will revert back to the normal command mode. Entering “END” or aborting LD 38 releases the manual conference.	
DISL loop	Disable conference loop. For NT8D17 Conference/TDS/MFS cards, see ENLL command.	basic-1
DISX loop	Disable NT8D17 Conf/TDS/MFS card.	xct-15
	Disables the entire combined Conference, Tone and Digit Switch, and MF Sender (XCT) card. Both the even numbered and adjacent loop are disabled.	
	Where: • loop = 1, 3, 5,... 255, Option 81C with Fiber Network Fabric	fnf-25
	The DISL and ENLL commands can be used on the even number loop for the conference function. However, this only prevents the loop from being used by software and does not affect the hardware status of the card. The DISX and ENLX commands are recommended. The ENLX command must be used if the DISX command was used to disable the card.	
	This command can be used in LD 34, LD 38 and LD 46.	
END	Abort all current test activity. There will be a 30 second time-out dial tone for phones still off-hook.	basic-1
ENLL loop	Enable conference loop.	basic-1
	For NT8D17 Conference/TDS/MFS cards the DISX and ENLX commands must be used whenever the faceplate switch of the card has been toggled. ENLL will software enable the card but the card will not be properly reset.	
	Enabling more than 16 conference loops may cause system to lock-up.	
ENLX loop	Enable NT8D17 Conf/TDS/MFS card on loop and loop - 1.	xct-15
	Enables all functions on the NT8D17 Conference/TDS card. Both the even numbered TDS/MFS loop and adjacent conference loop are enabled.	
	Where: loop = 1, 3, 5,... 255, Option 81C with Fiber Network Fabric	fnf-25

	If one of the loops is already enabled, it is disabled and then both loops are enabled. The Conf/TDS card is not enabled automatically when it is inserted. This command initiates card tests, downloads software and can be used in LD 34, LD 38 and LD 46. The DISL and ENLL commands can be used on the even number loop for the conference function. However, this only prevents the loop from being used by software and does not affect the hardware status of the card. The DISX and ENLX commands are recommended. Enabling more than 16 conference loops may cause the system to lock-up.	
LCNF loop	List busy and disabled conferee groups on specified loop.	basic-1
STAT loop	Provide status of conference card loop. Output format is: 1. `CNFC N DSBL N BUSY` = number of conferee groups disabled and busy 2. `CHAN N DSBL N BUSY` = number of channels disabled and busy 3. `UNEQ` = card is not equipped in the system 4. `DSBL` = card is disabled in software	basic-1
STAT c u	List conference card and group used by specified TN. (Option 11C)	
STAT l s c u	Lists which conference card and conferee group is being used by the specified terminal number.	basic-1

LD 39: Intergroup Switch and System Clock Generator Diagnostic

The Intergroup Switch (IGS) and System Clock Generator (SCG) or Clock Controller (CC) diagnostic applies to multi-group systems. It is used to:

- determine the status of any Peripheral Signaling, Intergroup Switch (IGS), System Clock Generator (SCG) or Clock Controller (CC) card
- disable and enable any PS, IGS, SCG or CC card
- switch the system clock from one SCG or CC to another
- clear minor alarm indications and the maintenance display on the active CPU
- All SCG commands can be used for Clock Controllers, although LD 60 is normally used when DTI, CPI or PRI features are installed

Group, loop, and Peripheral Signaling card relationship

Group	Shelf	PS	Loops
0	0	0	0-15
0	1	1	16-31
1	0	2	32-47
1	1	3	48-63
2	0	4	64-79
2	1	5	80-95
3	0	6	96-111
3	1	7	112-127
4	0	8	128-143
4	1	9	144-159

Fiber Network Fabric

During the process of enabling FIJI card, the following tests will be performed..

- I/O test
- Check card ID
- Check Control Status Register
- Connection memory test for FIJI card
- Synchronize connection memory for active calls in that group

If the card passes the tests, it will be enabled; otherwise, proper error message will be printed.

The Fiber Network Fabric extends and enhances the 5-group network architecture to 8 non-blocking (inter-group) Network groups, with a resulting expansion in network capacity to 8k timeslots available for Intergroup traffic. This is achieved by using OC-12 SONET rings, and adding additional network and PE shelves, cards and cables and software changes to allow using the expanded network capacity. This expansion increases the number of available loops from 160 to 256. This applies to the Option 81C only.

Basic commands

ARCV ON/OFF	Set or reset auto-recovery operation for ring
ALRD x	Turn alarm display on or off for all FIJI cards.
BLK x	Card Clock Block on ring x
CDSP	Clear the maintenance display on active CPU to 00 or blank
CLR ALRM x y (z)	Clear z (all) alarm history for FIJI in group x, side y
CLM x y	Clamp PLL reference voltage for specified FIJI card on group x side y
UCLM x y	Unclamp PLL reference voltage for specified FIJI card on group x side y
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c
DIS ALRM x y (z)	Disable alarm z (all) for FIJI in group x, side y
DIS FIJI x y	Disables FIJI in group x, side y
DIS IGS x	Disables IGS card x (0 to 19)
DIS RALM	Disable all alarms for all FIJI cards in ring x
DIS RING x	Disables all FIJI cards on side x
DIS SCG x	Disable SCG card x (0 or 1)
DISI IGS x	Disables IGS card x (0 to 19) when idle
DSPS x	Disable PS card x
END	Stop current operation or test
ENL ALRM x y (z)	Enable alarm z (all) for FIJI in group x, side y
ENL FIJI x y	Enables FIJI in group x, side y
ENL FIJI x y FDL	Enables FIJI in group x, side y with Force download.
ENL IGS x	Enables IGS card x (0 to 19)
ENL RALM x	Enable all alarms for all FIJI cards in ring x
ENL RING x	Enables all FIJI cards on side x
ENL SCG x	Enable SCG x (0 or 1)
ENPS x	Disable PS card x
IDC x y	Get cardid of FIJI card in group x, side y
PERF x y	Upload performance report for FIJI in group x, side y
RSET	Reset threshold for switchover functionality.
RSTR	Restore Ring(s)
SCLK	Switch clock to other SCG
STAT ALRM x y	Query alarm condition for FIJI card in group x, side y

STAT ALRM x y FULL	Query status of all alarms (active and inactive) for FIJI card in group x, side y
STAT FIJI x y	Get status of FIJI card in group x, side y
STAT IGS x	Get status of IGS card x (0 to 19)
STAT PER x	Print status of PS card x
STAT RING x	Get status of FIJI cards on side x
STAT SCG x	Print status of SCG x (0 or 1)
SWRG y	Switch call processing to ring y
TEST 360 x y z	Perform 360 test on FIJI card in group x (0-7), side Y (0 or 1) for time z (in 2 second intervals)
TEST BKPL x y	Perform Backplane Test on Side X, Group Y
TEST CMEM x y	Perform Connection Memory test on the FIJI in group x (0-7) side y (0 or 1).
TEST FIJI x y	Self-test FIJI card in group x (0-7), side y (0-1)
UBLK x	Card Clock Unblock on ring x
UCLM x y	Unclamp PLL reference voltage for specified FIJI card on group x side y

Alphabetical list of commands

Command	Description	Pack/ Rel
ARCV ON/OFF	Set or reset auto-recovery operation for ring	fnf-25
ALRD x	Alarm display for all FIJI cards where x = ON or OFF	fnf-25
BLK x	Card Clock Block on ring x	fnf-25
CDSP	Clear the maintenance display on active CPU to 00 or blank.	basic-1
CLM x y	Clamp PLL reference voltage for specified FIJI card on group x side y	fnf-25
CLR ALRM x y (z)	Clear z (all) alarm history for FIJI in group x (0-7), side y (0-1)	fnf-25
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
CMIN c	Clear minor alarm indication on attendant consoles for customer c.	basic-1
DIS ALRM x y (z)	Disable alarm z (all) for FIJI in group x, side y	fnf-25
DIS FIJI x y	Disables FIJI in group x (0-7), side y (0-1)	fnf-25
DIS IGS x	Disables IGS card x (0 to 19).	basic-1
DIS RING x	Disable all FIJI cards on side x (0-1)	fnf-25
DIS SCG x	Disable SCG card x (0 or 1). Not applicable for NTRB53 Clock Controller. Use LD 60 instead.	basic-1 basic-25.4
DISI IGS x	Disables IGS card x (0 to 19) when idle. Use of this command is recommended instead of DIS IGS, which interrupts calls in progress. The command's progress can be monitored by using the appropriate STAT command. The command's completion is indicated by an output of ISR043 on the maintenance terminal.	basic-1

DSPS x	Disable PS card x (0 to 15). Where: • x = 0-15, Option 81C with Fiber Network Fabric	basic-1 fnf-25
END	Stop current operation or test.	basic-1
ENL ALRM x y (z)	Enable alarm z (all) for FIJI in group x (0-7), side y (0-1)	fnf-25
ENL FIJI x y	Enables FIJI in group x (0-7), side y (0-1)	fnf-25
ENL FIJI x y FDL	Enables FIJI in group x (0-7), side y (0-1) with Force download.	fnf-25
ENL IGS x	Enables IGS card x (0 to 19).	basic-1
ENL RING x	Enables all FIJI cards on side x (0-1)	fnf-25
ENL SCG x	Enable SCG x (0 or 1). Not applicable for NTRB53 Clock Controller. Use LD 60 instead.	basic-1 basic-25.4
ENPS x	Disable PS card x (0 to 15).	basic-1
IDC x y	Get cardid of FIJI card in group x (0-7), side y (0-1)	fnf-25
PERF x y	Upload performance report for FIJI in group x (0-7), side y (0-1)	fnf-25
RSET	Reset threshold for switchover functionality.	fnf-25
RSTR	RestoreRing(s). Restore the rings to the best possible state (best to worst) as follows: • Both Rings DRIVES HALF (Normal state) • Ring 1 DRIVES FULL - Ring 0 DRIVES NONE • Ring 0 DRIVES FULL - Ring 1 DRIVES N0NE • SURVIVAL state ***Note:*** This command can be issued with the rings in any state other than normal (DRIVES HALF)	fnf-25
SCLK	Switch clock to other SCG. Functions with NTRB53 Clock Controller	basic-1 basic-25.4

STAT ALRM x y — fnf-25

Query alarm condition for FIJI card in group x, side y. This will display current state of alarms and whether they are disabled or not.

STAT ALRM x y FULL

Query status of all alarms (active and inactive) for FIJI card in group x, side y — fnf-25

If the X parameter is omitted, the individual alarm status for each FIJI in ring Y is printed, with inactive (OFF) alarms suppressed.

Note: The NEWK and NEWZ alarms are always printed.

If both X and Y parameters are omitted, the alarm status is printed out for both rings.

STAT FIJI x y — Get status of FIJI card in group x (0-7), side y (0-1). x and y are optional parameters. State of FIJI card will be displayed. Also alarm condition will be displayed. — fnf-25

STAT IGS x — Get status of IGS card x (0 to 19). — basic-1

The response of "`x DSBL y BUSY`" indicates the number of junctor timeslots disabled or busy associated with the specified IGS card.

STAT PER x — Print status of PS card x (0 to 9). — basic-1

Possible responses:

1. `DSBL: NOT RESPONDING` = PS card x is either missing, faulty or disabled via the faceplate switch. If there is a fault in the extender pair for the network shelf, the status of the PS card will also be DSBL: NOT RESPONDING.
2. `DSBL: RESPONDING` = The PS card is disabled and responding to the CPU. The PS may have been disabled by manual request (DSPS) or the associated extender pair may have been manually disabled.

If neither of these conditions exist, the card may have been disabled because of an overload condition on the associated shelf.

Check for OVD messages appearing in previous TTY output. An attempt to enable a PS card which was disabled because of an overload may result in a recurrence of the overload condition: the system's service may be impaired for approximately 2 minutes.

	Where: • x = 0-15, Option 81C with Fiber Network Fabric	fnf-25
STAT RING x	Get status of Ring on Side X (0 to 1). State of RING and state of FIJI cards will be displayed. How many times a switchover took place will be displayed.	fnf-25
STAT SCG x	Print status of SCG x (0 or 1). Prints normal status of NTRB53 (not full status)	basic-1 basic-25.4
SWRG y	Switch call processing to ring y (0 to 1). This makes ring y drive all 960 inter-group timeslots.	fnf-25
TEST 360 x y z	Perform 360 test on FIJI card in group x (0-7), side Y (0 or 1) for time z (in 2 second intervals) ***Note:*** The 360 test sends a test pattern on timeslot 1 thru all FIJI cards on the ring and back to the sending FIJI testing transmission through the whole ring. Output represents success or fail for links 0-7, 8-15, 16-23, 24-31. Example `000000FF` indicates failure on links 0-7.	fnf-25
TEST BKPL x y	Perform Backplane Test on Side X, Group Y The specified FIJI card writes a specific pattern to the backplane and reads it back. Result: Each link (0-31) is displayed with PASS or FAIL	fnf-25
TEST CMEM x y	Perform Connection Memory test on the GFIJI in group (0-7) side y (0 or1). Card must be in disable state.	fnf-25
TEST FIJI x y	Self-test FIJI card in group x (0-7), side y (0-1)	
UBLK x	Card Clock Unblock on ring x	fnf-25
UCLM x y	Unclamp PLL reference voltage for specified FIJI card on group x side y	fnf-25

LD 40, 42: Call Detail Recording Diagnostic

The Call Detail Recording (CDR) feature outputs call records to a single or multi-port tape drive storage system. The tapes are processed to produce billing reports.

The Option 51C/61C/81C Pseudo TTY (PTY) and Call Processor (CP) cards do not support the CDR link maintenance commands (CDL, CTY) used in this Overlay. When using the STAT command in this LD, the output includes all the ports: CP and PTY.

Automatic diagnostic routines

LD 40 is run in background, during the daily routines, or automatically in response to CDR faults. It performs the following:

- CDR Link test.
- CDR Controller status report.
- CDR data transmission/loss summary.

Fault indications reported by LD 40 are cleared after their corresponding CDM message is output. Faults in a multi-port CDR Tape Controller are reported to all Meridian 1 systems connected to the controller. The fault records kept for each Meridian 1 system are maintained and cleared independently of each other by the controller.

Loading LD 40 manually runs the automatic fault-clearing routines. Also, similarly to LD 42, the "CDMA loaded today" flag which prevents LD 40 from being automatically loaded more than once a day are cleared. Thus, manually loading LD 40 or 42 allows faults detected in the afternoon to be reported, even though previous faults may have been detected and cleared in the morning.

To run CDMA in background, you must reload LD 40 after a trouble has been cleared using LD 42. CDM117 X 3 is printed after LD 40 has been reloaded, where X is the Meridian 1 link or port number. This reload is required so that the Meridian 1 can react again as soon as another error is detected.

CDR maintenance mode and commands

Use LD 42 to:

- enable/disable/give status of CDR links and TTY
- perform diagnostic tests on CDR machines
- perform manual tape functions on CDR machines
- clear alarms and the maintenance display
- clear the maintenance display of CDR machines
- clear "CDMA loaded today" flags

The CDR storage system is put into maintenance mode to test the tape drive. While in maintenance mode, call records are saved in tape buffers. When all the buffer space is used up, incoming call records are lost. An 8K CDR machine can buffer about 600 call records; a 32K CDR can retain about 2500. Use the BUFF command to write the buffer contents to tape or output it to the I/O device.

Enter maintenance mode

- Load CDM (LD 42).
- Issue the PORT command to specify the CDR port.
- Issue the GET command to put the CDR into maintenance mode.

GET sends the "Request Maintmode" message to CDR and waits for CDR to grant MAINTMODE, which CDR will not do until it is finished its current activity on the drive.

When CDR grants Maintenance Mode, it also makes available a tape buffer for the use of the read/write and RBC functions. This buffer may be loaded with data by using the LOAD command and the contents can be output onto the TTY by using the BUFF command without indicating which buffer to output (it defaults to the active maintenance buffer).

Exit maintenance mode

To ensure that CDR does not stay in maintenance mode forever, CDR starts a 30 second timer whenever it receives a request for maintenance mode. If this timer expires, CDR resets maintenance mode. To prevent this, CDM sends a message every 5 seconds to keep the CDR in maintenance mode.

If CDM does not send the message in time, CDR will reset maintenance mode and a CDM017 message will appear to indicate that maintenance mode has been lost. Pressing the UNLOAD button on CDR will also cancel maintenance mode.

The CDR may also be released from maintenance mode using the FREE command. When CDR leaves maintenance mode it returns to the state it was in before it entered maintenance mode. That is, if it was in a state in which it would not attempt to write on the drive, it will still not try to use the drive.

However, if it was using the drive before it entered the maintenance mode, it will use one of two methods to return to using the drive:

- If it left maintenance mode because of a time-out, it will rewind to LP and search for the first tape mark to locate the place where it should begin writing.
- If the FREE command was used to release it from maintenance mode, it will begin writing on the tape wherever the tape is. Thus, the tape should be left at the same point it was before maintenance mode was entered.

Ensure tape integrity

The following procedure is recommended to ensure tape integrity if manual tasks are to be performed on the drive using CDM:

1. UNLOAD the call recording tape from the drive.
2. Mount a scratch tape and put the drive on line but do not use any of the CDR pushbuttons. Call records are now being stored in tape buffers so this should only be done at low traffic periods.
3. Use CDM to issue the PORT and GET commands.
4. Perform tests using manual functions.
5. Issue the FREE command.
6. UNLOAD the scratch tape.
7. Remount the call-recording tape and press RESTORE to get the tape to the proper position for writing. If the tape is nearly full, a new call recording tape might be loaded instead to save time.

Verify proper recording

To verify that call records are being properly recorded on tape, the following procedure may be used:

1. Issue the PORT and GET commands to go into maintenance mode.
2. Issue the FUNC BKSP 1 command to position the tape just before the most recently written block.
3. Issue the FUNC READ command to read the most recently written block.
4. Issue the BUFF command to output the contents of the maintenance buffer on your I/O device.
5. Issue FREE to release the drive from maintenance mode.

This procedure may be modified easily to allow the checking of tape blocks older than the most recent. Extreme caution is advised, however, as it is easy to lose track of where the tape is positioned.

If it is suspected that the tape may not be positioned just after the last data block on tape when the FREE command is about to be issued, simply abort the program (****). This will cause the CDR machine to time out from maintenance mode after 30s, after which CDR will automatically restore tape position so that data recording can continue normally.

D-channel Expansion

With the introduction of D-channel Expansion, new software allows the increase of D-channels past sixty-four. Instead of the Meridian 1 system having a maximum of 16 I/O addresses, the new software allows 16 physical I/O addresses (0 - 15) per network group for D-channels defined on MSDL. With this enhancement a response to the system response GROUP is required to inform the system of the desired network group.

Note: See "D-channel Expansion commands" in LD-48 or LD-96 for a complete description of these commands.

Basic commands

On Option 11C systems, Overlay 42 commands are available as described below, with the exception that on Option 11C, ESDI ports are used instead of SDI ports.

BLOC	Output hexadecimal contents of CDR tape block
BUFF	Output contents of CDR maintenance mode buffer
BUFF x	Output contents of tape buffer x
CCDS x	Clear maintenance display of CDR on link x
CDSP	Clear the maintenance display on active CPU to 00 or blank
CMIN AL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c
DIS LINK x	Disable device on link x
DIS SL1 x	Disable CDR device x
DIS TTY x	Disable device x
DISP pg addr cnt	Display CDR storage
ECHO x y	Perform echo test on link x, y times
END	Terminate command in progress
ENL LINK x	Enable link x
ENL TTY x	Enable TTY x
FREE	Release CDR from maintenance mode
FUNC function	Initiate specified tape drive function
GET	Put CDR tape unit into maintenance mode
LOAD xxxx	Set buffer for a WRITE
PORT	Reset port
PORT x	Set up links for commands to follow
STAT x	Get status of SDI x
STAT SL1 ALL, x	Get status of one or all CDR ports
STOR pg addr	Alter CDR storage information
TEST x	Write x sets of test records to tape

Alphabetical list of commands

Command	Description	Pack/Rel
BLOC	Output hexadecimal contents of CDR tape block.	clnk-1
BUFF	Output contents of CDR maintenance mode buffer.	clnk-1
BUFF x	Output contents of tape buffer x. For a single port CDR machine, 0<x<6. For a 32K machine, 0<x<29. The contents of the buffer may change while it is being output.	clnk-1
CCDS x	Clear maintenance display of CDR on link x.	clnk-1
CDSP	Clear the maintenance display on active CPU to 00 or blank.	clnk-1
CMIN ALL	Clear minor alarm indication on all attendant consoles.	clnk-1
CMIN c	Clear minor alarm indication on attendant consoles for customer c.	clnk-1
DIS LINK x	Disable device on link x.	clnk-1
DIS TTY x	Disable device x. You may not disable the TTY you are logged into.	clnk-1
DISP pg addr cnt	Display CDR storage. Where: pg = memory page 0, 2 or 3. cnt = the number of words to output. If cnt is not entered, one word will be output. No checking is performed on the validity of the address. If an invalid address is provided, the CDR machine will trap with a response time-out. This command can be used to continue printing buffer contents, if time-out or transmission error occurs using the BUFF x command, rather than reissuing BUFF x and starting from the beginning again. In this case, the command is: DISP O addr 100 addr = given by the last 4-digit hexadecimal code preceding the colon in the last printed line.	clnk-1

ECHO x y	Perform echo test on link x, y times. A test pattern is sent to the CDR machine and the machine echoes it back. OK is output if a successful response indicates a fault-free link. If y is not provided, the test is performed once only.	clnk-1
END	Terminate command in progress. This command may be output at any time.	clnk-1
ENL LINK x	Enable link x. The specified link is checked for response and stuck interrupt. OK is output and the link enabled if the tests are passed.	clnk-1
ENL TTY x	Enable TTY x. The specified TTY is checked for response and stuck interrupt. OK is output and the TTY is enabled once the tests are passed.	clnk-1
FREE	Release CDR from maintenance mode. If the CDR tape drive is enabled, then the next tape block that CDR has to write will be written wherever the tape was left. Thus, if the FUNC command was used on a tape which is to contain valid CDR data, it is imperative that the user reposition the tape to the same position that CDR had it before the FUNC command was used.	clnk-1

FUNC function	Initiate specified tape drive function. Initiates the specified function on the tape drive. "Function" may be one of: 1. STAT = status function 2. WID = write ID burst function 3. WTM = write tape mark 4. WFB = write contents of the maintenance tape buffer 5. READ = read block into maintenance buffer 6. RBC = perform read back check into maintenance buffer 7. SKIP x = skip x blocks in hexadecimal number 8. ERG = erase gap 9. ERAS = erase to end of tape 10. BKSP x = backspace x blocks in hexadecimal number 11. REW = rewind 12. UNL = unload 13. TERM = terminate These commands correspond to the primitive tape functions supported by the CDR tape handler firmware. The FUNC STAT command causes the tape status to be printed at the TTY. The tape status is the first word printed in response to the BLOC command and is the "status" field of a CDM122 error message. If the "unexpected interrupt" bit in the tape status in ON, a word corresponding to the "unexpected" field in a CDM122 message is printed.	clnk-1
GET	Put CDR tape unit into maintenance mode. When CDR is in this mode, it will not initiate any tape functions of its own. A tape buffer will be allocated for CDM to use for tape functions. Only one system may put the CDR into maintenance mode at one time. See the description of maintenance mode.	clnk-1
LOAD xxxx	Set buffer for a WRITE. The hexadecimal digits xxxx are propagated through the tape buffer allocated for maintenance mode. The command is used to set the buffer for a WRITE.	clnk-1

PORT	Reset port. Resets the port so that no port is active. Enter the following commands only after a PORT command, and only from a TTY: DISP STOR BLOC TEST x BUFF (continued on next page) BUFF x GET LOAD xxxx FUNC FREE ENL SL-1 x DIS SL-1 x STAT SL-1 x	clnk-1
PORT x	Sets the links to which the following commands will apply. This command may only be entered from a TTY. Take care when using the following commands with PORT or PORT x, as the CDR may trap data or write erroneous data to tape. DISP STOR BLOC TEST x BUFF BUFF x GET LOAD xxx FUNC FREE ENL SL-1 x DIS SL-1 x STAT SL-1 x	clnk-1
STAT	Lists all SDI cards and specifies whether they are dedicated to data links or TTY; enabled or disabled. Output is: `SDI x <tty/link> <enbl/dsbl><messages> <naks> <time-outs> <lost>` If the device is an enabled link, then the number of messages sent, the number of transmission errors and the number of lost call records are also output. See error code CDM121 for a description of the <> fields.	clnk-1

STAT SL1 ALL, x — clnk-1

Get status of one or all CDR ports. This command is used to output the status of ports in multiport CDR machines.

The format of the output is: `status type mode`

Where:

`status` = UNEQ (unequipped), DSBL (Disabled) or ENBL (enabled)

`type` = SNGL (single-port SDI) or DUAL (dual-port SDI)

`mode` = May be IDLE (normal idle), BUSY (normal busy), SOF (software-disabled), NOIS (disabled for too many interrupts), STUC (disabled for stuck interrupt condition) or EIA (disabled for having EIA device not ready)

STAT x — Get status of SDI x. Output is: — clnk-1

`<tty/link> <enbl/dsbl/uneq> <messages> <naks> <time-outs> <lost>`

See error code CDM121 for a description of the <> fields.

STOR pg addr — Alter CDR storage information. — clnk-1

The old contents of the location is output and the user is prompted for the new contents. After entering the new contents, enter a space or carriage return.

If a carriage return is entered, the command ends. If a space is entered, the contents of the next location are output and the user is prompted for input. If only the carriage return or space is entered (i.e., the new contents are not input), then the current word is not modified. If an invalid address is provided, CDR will response time-out.

TEST x	Write x sets of test records to tape. Before using this command, refer to the description of the maintenance mode prior to this table. If x is not given, the default is 1. As this command writes to tape, a scratch tape should be mounted before the command is executed. PORT and GET commands must be issued before this command can be used. Twenty blocks of data are written to the tape, then the tape is rewound and read to check the data. The number of errors found is output using a CDM035 message.	clnk-1

LD 43: Equipment Datadump

This program is used to keep data on the system storage device up to date. When the datadump program is invoked, data in the read/write memory (including any that has been changed or added) is written to the storage device at the location reserved for it.

Option 11C systems maintain two copies of customer data. The Primary copy on the Flash ROM software cartridge that is mounted on the CPU/Conf card and the Secondary copy on the core system CPU/Conf card Flash ROM. The datadumping commands for Option 11C systems allow data to be stored in a non-volatile media for backup and upgrade purposes. Off-site storage of customer data is addressed on the Option 11C by the NTAK80 backup cartridge or by Remote Backup onto a PC.

The program can be invoked daily as part of the daily routines or loaded manually. An incremental datadump occurs during the daily routines if database changes have been made.

Options 51C, 61C, and 81C utilize two CMDUs and disk redundancy, LD 43 commands apply to both sides of the system. Refer to the specific commands for the differences between Options 51C, 61C, or 81C and other systems. Refer to System installation (553-3001-210) for general information.

Following a successful EDD on Options 51C, 61C, and 81C, the “HI” (Hardware Infrastructure) string is output.

When the datadump fails

In the event of an unsuccessful initial dump, the office data on the tape or disk is suspect. Another datadump with spool option should be done on the same tape or disk; if successful, a transient error is indicated and normal procedures can be resumed. If this second attempt also fails, DO NOT attempt another datadump until the fault is isolated and corrected.

If the storage medium is not proved faulty and the storage device appears serviceable, datadumping to an OLD tape or disk, if available, may help to pinpoint the problem.

Except during the troubleshooting phase, storage medium which has failed to datadump successfully must not be left in the storage device. Should a SYSLOAD occur with such a storage medium, the load may terminate abnormally with unpredictable results.

Low memory warning

Unprotected data store equal in size to the length of the records being written (i.e., 512 words) must be available to the datadump program.

A low memory warning message (SCH603) is issued when spare unprotected data store falls below a given threshold. Once this warning message has been issued, it is not possible to perform a datadump as the system requires spare unprotected data store equivalent to the size of a record on the storage medium (i.e., 512 words).

Users should ensure that these amounts of spare unprotected data store are available before attempting to perform a datadump.

Option 11C ROM selection for SYSLOAD

The following table shows where the system will load from with the software cartridge Flash ROM and CPU/Conf card Flash ROM in their different states.

CPU/Conf Card Flash ROM State	Software Cartridge Flash ROM State			
	PREP	**EDD**	**UPG**	**UPS**
PREP	Cartridge	Cartridge	Cartridge	Cartridge
EDD	Cartridge	Cartridge	Cartridge	CPU/Conf
UPG	CPU/Conf	Cartridge	Cartridge	CPU/Conf

The state of both the CPU/CONF card Flash ROM and the Software Cartridge Flash ROM determine where the data is loaded from during SYSLOAD.

The following message occurs on SYSLOAD:

```
DATA FROM XXXXX YYY/ZZZ
```

Where:

Code	Represents	Description
XXXXX	SCORE	Data is loaded from the CPU/Conf Flash ROM during SYSLOAD
	CART	Data is loaded from the software cartridge Flash ROM during SYSLOAD
YYY	CPU/CONF card state	(PREP, EDD or UPG)
ZZZ	S/W cartridge state	(PREP, EDD, UPS or UPG)

Note: Software cartridges are sent from the factory in the PREP state.

Basic commands

The following commands are applicable to all machines, except Option 11C systems. See the list of Option 11C system commands for further information.

BKO	Copy data from primary to backup device
DAT	Print the data issue and creation date of the primary and backup database
EDD	Invoke datadump program
EDD CLR	Clear datadump inhibit flag
EDD CN	Save CND names (use prior to datadump)
EDD DP xx xx ..xx	Dump patch
EDD GP	Get patch
EDD HM	Save AWU, RMS and MR data (prior to dump)
EDD IWC	Inhibits write check: caution
EDD NBK	Inhibit database backup
EDD NS	Inhibit tape far-end spool
EDD NX	Write tape data records
EDD SA	Complete data dump and bypass software audit
EDD SP	Spool tape to far-end
PBX CF6 (ALLOWED)	Bit dumped with PBX data block
RES	Copy entire contents of backup to primary device
SWP	Swap (exchange) main and ".bak" data files on the primary flash drive

Option 11C commands

BKO	Copy data from primary to backup device
DAT	Print the data issue and creation date of the primary and backup database.
EDD	Invoke data dump and write entered data to the primary and internal backup drives
EDD CLR	Clear datadump inhibit flag
EDD HM	Save AWU, RMS and MR data (prior to dump)
EDD IWC	Inhibits write check (for emergency use only)
EDD NBK	Invoke data dump and write entered data to the primary and internal backup drives
RES	Restore files to the primary device from the external backup device
RIB	Restore backup files from the internal backup device into the primary device
SWP	Swap (exchange) main and ".bak" data files on the primary flash drive

Alphabetical list of commands

Command	Description	Pack/Rel
BKO	Copy data base from primary device (Winchester disk) to backup device (floppy disk). BKO is applicable to systems with hard disk storage, including Option 11C.	basic-19
DAT	Print the creation date of the main, secondary, or backup database.	basic-18
EDD	Invoke datadump program For system Option 81c, EDD creates backups to floppy disks for both CMDUs if redundancy is in effect and both CDMUs contain floppy disks. For system Option 61C, EDD creates backups to floppy disks for the active CDMU. This command dumps data to the Flash ROMs on both the CPU/Conf card and the software cartridge., and marks each as an “EDD” copy.	basic-1
EDD CLR	Clear datadump inhibit flag and do a datadump This flag is set because SYSLOAD or the conversion programs detect incomplete or inconsistent equipment data. Exercise caution since the use of this option may result in incorrect data being written.	basic-1
EDD CN	Save CND names. EDD CN saves the names associated with DNs for Caller's Name Display. Use Prior to datadump.	basic-1
EDD DP xx xx xx...	Dump patch Customer data and the specified patches (xx xx...xx) are dumped onto disk. If no patch numbers are specified, then only customer data is dumped. The EDD DP command Is not supported for Option 11C systems.	basic-18

EDD GP	Get patches The non-patch customer data from the core memory is placed on the new disk without overwriting the preloaded patches on the disk. Any patches in the system are also ignored. The EDD GP command is not supported for Option 11C systems.	ph-6
EDD HM	Saves Automatic Wake Up (AWU), Room Status (RMS) and Message Registration (MR) data. Use prior to datadump, then system load. This should be performed prior to a SYSLOAD or software conversion.	basic-1
EDD IWC	Inhibits write check. Caution: for Emergency Use Only. Inhibits write check. This command is useful when the standard commands for datadump fail and end-of-file cannot be found. It writes an end-of-file on tape and allows other commands to be invoked.	basic-1
EDD NBK	Inhibit database backup. Indicates that a database backup should not be done after a datadump. (Applicable to hard disk storage with floppy disk backup). For Option 11C systems, this command invokes a data dump and writes entered data to primary and internal backup drives.	basic-1
EDD NS	Inhibit tape far-end spool. Tape will not spool to the far-end and will not perform write test. Default option is SP. Overlay program cannot be aborted until writing has either been completed or has failed. This command applies to systems equipped with tape units.	basic-1
EDD NX	Writes tape data records consistent in size with predefined system values. Default option is NX.	basic-1
EDD SA	This command is used to complete the data dump and bypass the software audit of Peripheral Controller and superloop data.	basic-18

EDD SP	Spool tape to far-end. This command applies to systems equipped with tape units. Spools tape to the far-end in order to even the tension on the tape. Also writes a test record after the end of existing data to check for any write problems. If errors occur during test, data should remain intact.	basic-1
PBX CF6 (ALLOWED)	Bit dumped with PBX data block.	basic-1
RES	Restore files to the primary device from the external backup device. For Options 51C, 61C, and 81C, this command copies the contents of the floppy disks on the active CMDU to both hard disks providing redundancy is in effect. If redundancy is not in effect, this command copies the floppy disk contents to the active CMDU.	basic-19
RIB	Restore backup files from the internal backup device into the primary device (Option 11C)	opt11c-22
SWP	Exchange (swap) main and secondary database files. A sysload is required for the swap to take effect.	basic-19

LD 44: Software Audit

The audit program (LD 44) monitors system operation and provides an indication of the general state of system operation. The program is concerned mostly with the system software. When a software problem is encountered, the program outputs an AUD message and attempts to clear the problem automatically.

The audit program is changed to recognize and handle various scenarios added by Music or Recorded Announcement Broadcast features. The following checks are performed by audit for broadcasting trunks:

- Check the list of call registers connected to the broadcasting trunk and verify that the size of this list matches the number of callers connected according to the counter in the unprotected trunk block
- ensure that a trunk marked as broadcasting does indeed have more than one caller connected to it
- go through the list of call registers connected to the broadcasting trunk and ensure that the list is linked correctly from beginning to end
- all call registers in the broadcasting trunk call register list should point back to the broadcasting trunk
- various checks are done on the connections for a broadcasting call
- check through the list of call registers queued for and ensure the list is linked correctly from beginning to end

Running software audit

The Audit program is enabled as a Background Program or Daily Routine in the configuration record. See prompts BKGD and DROL in LD 17. To load the Audit program manually, enter:

LD 44

R **x**

Where, **x** is the number of audit passes required.

Enter 0 for continuous auditing. R and **x** must be separated by a space or the system responds with:

```
AUD REQ ERR.
AUDIT
```

The Meridian Mail MP data base audit (co-administration) is run during Audit if a data base mismatch is known by the system, or if it is being run manually.

LD 45: Background Signaling and Switching Diagnostic

This program performs network continuity tests and outputs detected problems via BSD messages.

The Manual Continuity Test (MCT) allows you to isolate intermittent faulty points reported by the Background Continuity Test (BCT). For example, BCT reports faults between A, B, and C. Run the MCT between A and B, then between B and C to determine how often it fails.

When run in background, LD 45 tests the following on all enabled network loops:

- the continuity of the speech path between each network card and its associated PE shelves is tested
- the continuity of the speech path between all network card is tested
- non functioning paths between network cards are identified

Note: When running in background, only new faults detected are output.

Memory and signaling tests are only performed in LD 30. If LD 45 is included in background or midnight routines it is recommended that LD 30 also be included. By including LD 30, bad memory areas will be flagged before the continuity tests of LD 45 which will improve fault isolation.

On Option 11C systems, this Overlay program is not available. Use Overlay program 30 (LD 30) to perform signaling tests on these systems.

Using the manual extended continuity (XCON) command

The XCON command is used to test various communication paths on or between NT8D04 Network, NT8D01 Controller, Multipurpose ISDN Signaling Processor (MISP), S/T-Interface Line (SILC) and U-Interface Line (UILC) cards. There are 10 paths XCON may test. Table 10 and Table 11 show 8 of these paths. Only 1 XCON test at a time can be run on a superloop.

To begin a manual extended continuity test, enter one of the following:

— XCON 0 = perform test once and output results

— XCON H hhh = repeat test for hhh hours (hhh = 1-255)

— XCON M mmm = repeat test for mmm minutes (mmm = 1-255)

— XCON S sss = repeat test for sss seconds (sss = 1-255)

After you enter a XCON command, you are prompted for a combination of the values listed below. The responses to these prompts determine the test performed.

Prompt — Response — Comment

DSLT — xx — Timeslot (2-31, 34-63, 66-95, 98-127) for Network Card associated with detector Controller.

GSLT — xx — Timeslot (2-31, 34-63, 66-95, 98-127) for Network Card associated with generator Controller.

JUNC — x — Junctor number (0-7).

LBTN — l s c u — Terminal Number (loop, shelf, card, unit) to be loopback point.

LBTY— N/P — Loopback address: N = Network Card, P = Controller or terminal.

> ***Note:*** When using XCON Test 9 for ISDN BRI, the possible responses for LBTY are 3 or 4. 3 indicated the test will take place with the DSL enabled; 4 performs the test with the DSL disabled.

PATT — x — Test pattern number (0-7). Signal sent by the generator to the detector. You should run a test several times with varying patterns.

SLOT — xx — Timeslot (2-31, 34-63, 66-95, 98-127). Enter return (<cr>) to select a random timeslot.

SUPL — l — Superloop number (0-156, in multiples of 4).

TAG — x — Tag number (1-15) returned by the system. Tag number 0 is used for one-shot tests (XCON 0).

TEST — x — Test case number (1-8).

TN — l s c u — Controller or terminal (loop, shelf, card, unit) to be the detector. For Controller, enter any valid TN on Controller's shelf. For special loopback channel enter: l s 99 0.

TYPD — N/P — Pattern detector: N = Network Card, P = Controller.

TYPG — N/P — Pattern generator: N = Network Card, P = Controller.

Fiber Network Fabric

The Fiber Network Fabric extends and enhances the 5-group network architecture to 8 non-blocking (inter-group) Network groups, with a resulting expansion in network capacity to 8k timeslots available for Intergroup traffic. This is achieved by using OC-12 SONET rings, and adding additional network and PE shelves, cards and cables and software changes to allow using the expanded network capacity. This expansion increases the number of available loops from 160 to 256. This applies to the Option 81C only.

For an existing fully configured machine (5 groups), the existing software takes about 4 hours to complete all 10080 inter-group continuity tests. When the number of groups grows from 5 to 8 and the number of junctors between any two groups grows to 32, the number of tests grows to 112896 which will take about 3 days and this is infeasible. The goal is to reduce the number of inter-group continuity tests to achieve the same diagnostic and maintenance functionalities within the same time frame.

With new hardware support, this new background continuity test for 8 groups can be done in parallel, instead of sequentially; however, the user interfaces remain unchanged.

Figure 10
XCON test paths

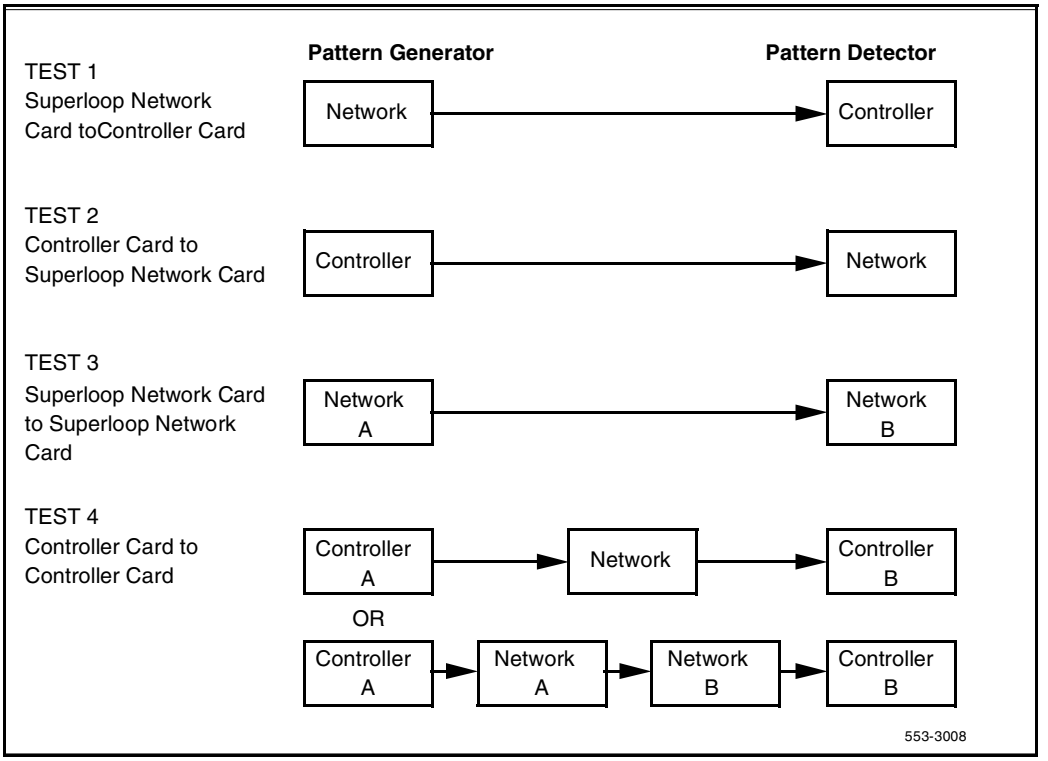
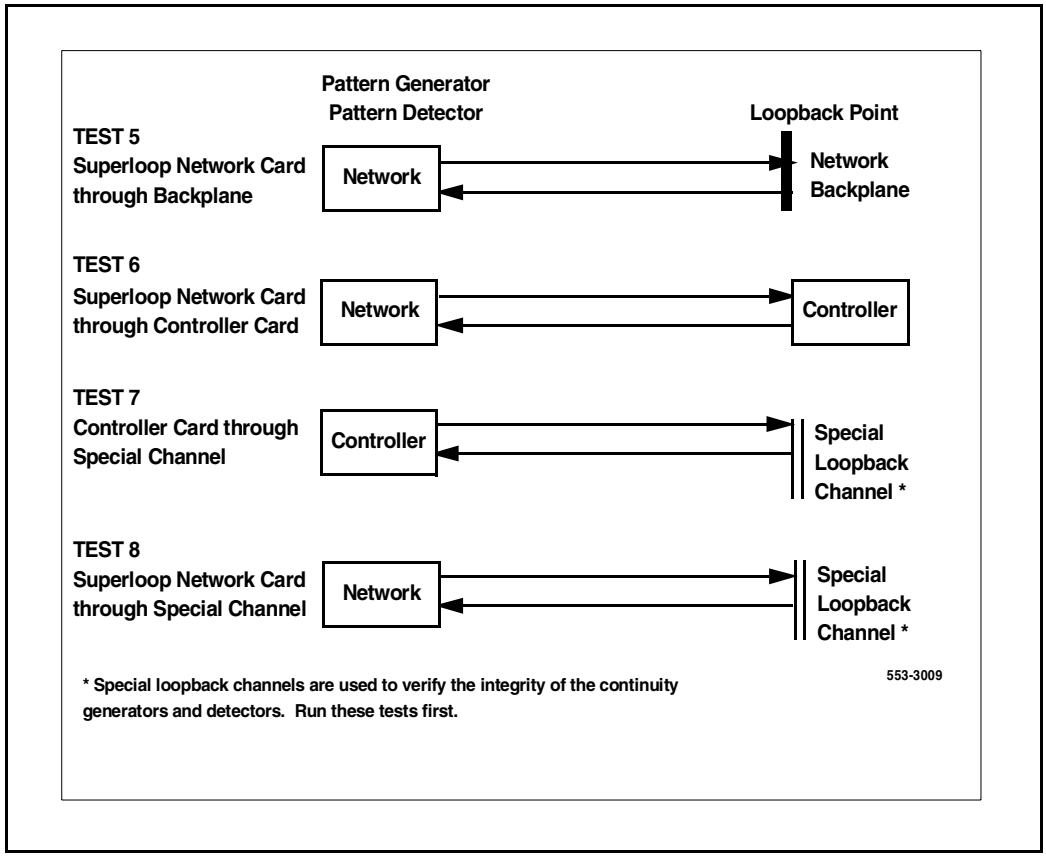


Figure 11
XCON test paths (continued)



Basic commands

TEST (loop)	Perform a complete continuity test for one or all loops. Unpluged cards are not tested for continuity.
XCON 0	Perform Extended Continuity test once and output results. User will be prompted for TEST number. See “XCON sub-prompts” on page 249.
XCON H hhh	Repeat Extended Continuity test for hhh hours (hhh = 1-255). User will be prompted for TEST number. See “XCON sub-prompts” on page 249.
XCON M mmm	Repeat Extended Continuity test for mm minutes (mm = 1-255). User will be prompted for TEST number. See “XCON sub-prompts” on page 249.
XCON S sss	Repeat Extended Continuity test for ss seconds (ss = 1-255). User will be prompted for TEST number. See “XCON sub-prompts” on page 249.
XINF	Display the tag numbers of all running and completed continuity tests
XSTA x	Get the status of manual continuity test with TAG = x
XSTP x	Stop manual continuity test with TAG = x

XCON sub-prompts

TEST = 1

Test Path Network Card to Controller.
This test uses the Network Card (NT8D04) as a pattern generator and the Controller (NT8D01) as the detector.

Pack/Rel xpe-15

Prompt	Response	Description
TEST	1	Network Card to Controller
TYPE	SL	Test superloop (SL)
PATT	x	Pattern (0-7)
TYPG	N	Network Card is generator
SUPL	loop	0-156 in multiples of 4
SLOT	xxx	Timeslot 2-31, 34-63, 66-95, 98-127. SLOT appears if Remote IPE package 286 is not equipped.
TYPD	P	Controller is detector E1 Carrier = Timesot : 0 = 5-31 ; 1 = 37-63 ; 2 = 69-95 T-1 Carrier = Timesot : 0 = 5-25 ; 1 = 37-57 ; 2 = 69-89
TN	l s c u	Valid TN on the Controller
TAG	xx	Tag number (1-15) assigned by the system

TEST = 2

Test Path Controller to Network Card.
This test uses the Controller (NT8D01) as a pattern generator and the Network Card (NT8D04) as the detector.

Pack/Rel xpe-15

Prompt	Response	Description
TEST	2	Controller to Network Card
PATT	x	Pattern (0-7)
TYPG	P	Controller is generator
TN	l s c u	Valid TN on the Controller
TYPD	N	Network Card is detector
SUPL	loop	0-156 in multiples of 4
SLOT	xxx	Timeslot 2-31, 34-63, 66-95, 98-127
TAG	xx	Tag number (1-15) assigned by the system

TEST = 3

Test Path Network Card to different Network Card. This test uses the Network Card (NT8D04) as a pattern generator and another Network Card as the detector.

Pack/Rel xpe-15

Prompt	Response	Description
TEST	3	Network Card to different Network Card
PATT	x	Pattern (0-7)
TYPG	N	Network Card is generator
SUPL	loop	0-156 in multiples of 4
SLOT	xxx	Timeslot 2-31, 34-63, 66-95, 98-127
TYPD	N	Network Card is detector
SUPL	loop	0-156 in multiples of 4
SLOT	xxx	Timeslot 2-31, 34-63, 66-95, 98-127
JUNC	x	Junctor if Network cards in different groups
TAG	xx	Tag number (1-15) assigned by the system

TEST = 4

Test Path Controller to different Controller. This test uses a Controller (NT8D01) as a pattern generator and another Controller as a detector. The pattern is sent through one or two Network Cards (NT8D04).

Pack/Rel xpe-15

Prompt	Response	Description
TEST	4	Controller to different Controller
PATT	x	Pattern (0-7)
TYPG	P	Controller is generator
TN	l s c u	Valid TN on the Controller
TYPD	P	Controller is detector
TN	l s c u	Valid TN on the Controller
GSLT	xxx	Timeslot 2-31, 34-63, 66-95, 98-127 on generator Network Card
DSLT	xxx	Timeslot 2-31, 34-63, 66-95, 98-127 on detector Network Card
JUNC	x	Junctor if Network cards in different groups
TAG	xx	Tag number (1-15) assigned by the system

TEST = 5

Test Path Network Card to Network Card (loop back at backplane). This test uses the Network Card (NT8D04) as a pattern generator and detector. The pattern is sent to the network backplane and back.

Pack/Rel xpe-15

Prompt	Response	Description
TEST	5	Network Card to Network Card (loop back at backplane)
PATT	x	pattern (0-7)
TYPG	N	Network Card is generator
SUPL	loop	0-156 in multiples of 4
SLOT	xxx	timeslot 2-31, 34-63, 66-95, 98-127
TYPD	N	Network Card is detector
SUPL	loop	0-156 in multiples of 4
SLOT	xxx	timeslot 2-31, 34-63, 66-95, 98-127
LBTY	N	through network backplane
TAG	xx	tag number (1-15) assigned by the system

TEST = 6

Test Path Network Card to Network Card (loop back through Controller). This test uses the Network Card (NT8D04) as a pattern generator and detector. The pattern is looped back through a Controller (NT8D01).

Pack/Rel xpe-15

Prompt	Response	Description
TEST	6	Network Card to Network Card (loop back through Controller)
PATT	x	Pattern (0-7)
TYPG	N	Network Card is generator
SUPL	loop	0-156 in multiples of 4
SLOT	xxx	Timeslot 2-31, 34-63, 66-95, 98-127
TYPD	N	Network Card is detector
SUPL	loop	0-156 in multiples of 4
SLOT	xxx	Timeslot 2-31, 34-63, 66-95, 98-127
LBTY	P	Through Controller
LBTN	l s 99 0	Special Controller loop back channel
TAG	xx	Tag number (1-15) assigned by the system

TEST = 7

Test Path Controller to Controller (special loop back channel). This test uses the Controller (NT8D01) as a pattern generator and detector. The pattern is looped back through a special loop back channel.

Pack/Rel xpe-15

Prompt	Response	Description
TEST	7	Controller to Controller (special loop back channel)
PATT	x	Pattern (0-7)
TYPG	P	Controller is generator
TN	l s 99 0	Special Controller loop back channel
TAG	xx	Tag number (1-15) assigned by the system

TEST = 8

Test Path Network Card to Network Card (special loop back channel). This test uses the Network Card (NT8D04) as a pattern generator and detector. The pattern is looped back through a special channel which is specified by timeslot 128.

Pack/Rel xpe-15

Prompt	Response	Description
TEST	8	Network Card to Network Card (special loop back channel)
PATT	x	Pattern (0-7)
TYPG	N	Network Card is generator
SUPL	loop	0-156 in multiples of 4
SLOT	128	Special Network loop back channel
TAG	xx	Tag number (1-15) assigned by the system

TEST = 9

Test Path Loop back test on Digital Subscriber Loop. This test uses the MISP as a pattern generator and detector. The pattern goes through the Network and Controller Card and is looped back at a single DSL. Both B- and D-channels are looped back.

Pack/Rel bri-18

Prompt	Response	Description
TEST	9	Loop back test on Digital Subscriber Loop
PATT	x	Pattern (0-7)
TYPG	N	Network Card is generator
SUPL	loop	0-156 in multiples of 4
SLOT	128	Special Network loop back channel
LBTY	3	DSL is requested for loop back
LBTN	l s c d	Address of DSL
TAG	xx	Tag number (1-15) assigned by the system

TEST = 10

Test Path Loop back test on BRI line card. This test uses the MISP as a pattern generator and detector. The pattern goes through the Network and Controller Card and is looped back at the line card level (i.e., bus loop back). Both B- and D-channels are looped back.

Pack/Rel bri-18

Prompt	Response	Description
TEST	10	Loop back test on BRI line card
PATT	x	Pattern (0-7)
TYPG	5	MISP is generator
SUPL	loop	0-156 in multiples of 4
SLOT	128	Special Network loop back channel
LBTY	4	loop back at line card
LBTN	l s c d	Address of DSL
TAG	xx	Tag number (1-15) assigned by the system

Alphabetical list of commands

Command	Description	Pack/Rel
TEST (loop)	Perform a complete continuity test for one or all loops. Performs a complete test and reports all faults detected (even if they have been previously reported). Where: • loop = 0-255, Option 81C with Fiber Network Fabric	basic-1 fnf-25
XCON 0	Perform Extended Continuity test once, then output results. After entering this command, you will then be able to select and conduct 1 of 10 possible XCON tests. These XCON tests begin on page 249.	xpe-15
XCON H hhh	Perform Extended Continuity test for hhh (1-255) hours, then output results. After entering this command, you will then be able to select and conduct 1 of 10 possible XCON tests. These XCON tests begin on page 249.	xpe-15
XCON M mmm	Perform Extended Continuity test for mmm (1-255) minutes, then output results. After entering this command, you will then be able to select and conduct 1 of 10 possible XCON tests. These XCON tests begin on page 249.	xpe-15
XCON S sss	Perform Extended Continuity test for sss (1-255) seconds, then output results. After entering this command, you will then be able to select and conduct 1 of 10 possible XCON tests. These XCON tests begin on page 249.	xpe-15

XINF	Display the tag numbers of all running and completed tests.
	
	The output format (where T# = Tag Number) is:
	
	`RUNNING:`
	` T#  T#  T#  T#. . . .`
	`DONE:`
	` T#  T#  T#  T#. . . .`
	`SUSPENDED:`
	` T#  T#  T#  T#. . . .`
	`FREE: x x` (number of free tags available [0-15])
		xpe-15

XSTA x	Get the status of manual continuity test with TAG = x. Individual tests are identified by the tag number the system generates when you complete a sequence of test prompts. See also the XINF and XSTP commands. The test status provides the following format information: PATT x — Pattern number GENERATE: — Generator information follows: TYPG N/P — Network or Controller as pattern generator SUPL x — Superloop number or TN on Controller SLOT x — Timeslot DETECT: — Detector information follows: TYPD N/P — Network or Controller as pattern detector SUPL x — Superloop number or TN on Controller SLOT x — Timeslot RESULTS: — Results follow: TESTS COMPLETED: xxxxxxxx TESTS FAILED: xxxxxxxx	xpe-15
XSTP x	Stop manual continuity test with TAG = x. Individual tests are identified by the tag numbers. The XSTP command outputs the test status. See also XINF and XSTA commands.	xpe-15

Alphabetical list of XCON sub-prompts

Prompt	Response	Description
DSLT	xxx	Timeslot (2-31, 34-63, 66-95, 98-127) for Network Card associated with detector Controller
GSLT	xxx	Timeslot (2-31, 34-63, 66-95, 98-127) for Network Card associated with generator Controller
JUNC	x	Junctor number (0-7) Where: • x = 0-31, Option 81C with Fiber Network Fabric
LBTN	l s c u or l s c d	Loop back Controller or Terminal Number. Where: l = loop, s = shelf, c = card, u = unit, and d = Digital Subscriber Loop (DSL).
LBTY	y	Loop back Type (3, 4, N, or P). Where: • 3 = Digital Subscriber Loop • 4 = Line Card • N = Network Card • P = Controller or Terminal
PATT	x	Test pattern (0-7) sent by the generator to the detector
SLOT	xxx	Timeslot (2-31, 34-63, 66-95, 98-127). Enter return (<cr>) to select a random timeslot. For special loop back slot enter: 128.
SUPL	loop	Superloop number in multiples of 4 Where: • loop = 0-156 • loop = 0-252, Option 81C with Fiber Network Fabric
TAG	xx	Tag number (0-15) returned by the system. Tag number 0 is used for one-shot tests (XCON 0).

TEST	xx	XCON test path (1-10). Where: • 1 = Network Card to Controller • 2 = Controller to Network Card • 3 = Network Card to different Network Card • 4 = Controller to different Controller • 5 = Network Card to Network Card (loop back at backplane) • 6 = Network Card to Network Card (loop back through Controller) • 7 = Controller to Controller (special loop back channel) • 8 = Network Card to Network Card (special loop back channel) • 9 = Loop back test on Digital Subscriber loop • 10 =Loop back test on BRI line card
	xxx	Perform a complete continuity test for one or all loops. Performs a complete test and reports all faults detected (even if they have been previously reported). Where: • xxx = 0-255, Option 81C with Fiber Network Fabric
TN	l s c u	Controller or terminal (loop, shelf, card, unit) to be the detector. For Controller, enter any valid TN on Controller's shelf. For special loop back channel enter: l s 99 0. Where: • l = 0-255, Option 81C with Fiber Network Fabric
TYPD	y	Type of Pattern Detector (N or P). Where: N = Network Card and P = Controller.
TYPG	y	Type of Pattern Generator (5, N, or P). Where: • 5 = Multipurpose ISDN Signaling Processor • N = Network Card • P = Controller

LD 46: Multifrequency Sender Diagnostic for Automatic Number Identification

This program is used to maintain the Multifrequency Sender card. The Multifrequency Sender card provides multifrequency signals of Automatic Number Identification (ANI) digits over Centralized Automatic Message Accounting (CAMA) trunks to a toll switching CAMA, Traffic Operator Position System (TOPS) or Traffic Service Position System (TSPS).

The MFS diagnostic program can be run in background, during the daily routines, or manually to enter commands. It performs the following tests:

- checks that the MF Sender card responds to system I/O functions
- tests the 30-channel memory locations, the 480 (30 **x** 16) digit buffer memory locations and the 64 First-in, First-out locations
- exercises all 15-digit codes with digit strings from 2 to 16 digits long and verifies both the 68 ms pulse width and whether each string outpulses to completion

No check is possible on MFS frequencies used in each tone burst due to the lack of receivers in the system. Also, no check can be made as to whether the correct digits are being outpulsed.

Overlay 46 is not supported on Option 11C systems.

Fiber Network Fabric

The Fiber Network Fabric Expansion extends and enhances the 5-group network architecture to 8 non-blocking (inter-group) Network groups, with a resulting expansion in network capacity to 8k timeslots available for Intergroup traffic. This is achieved by using OC-12 SONET rings, and adding additional network and PE shelves, cards and cables and software changes to allow using the expanded network capacity. This expansion increases the number of available loops from 160 to 256. This applies to the Option 81C only.

Basic commands

CDSP	Clear the maintenance display on active CPU to 00 or blank
CMAJ	Clear major alarm and reset power fail transfer
CMIN	Clear the minor lamp on a system basis
CMIN ALL	Clear minor alarm indication on all attendant consoles
DISL loop	Disable MFS loop
DISX loop	Disable Conf/TDS/MFS card on loop and loop + 1
END	Stop all current testing
ENLL loop	Enable loop
ENLX loop	Enable Conf/TDS/MFS card on loop and loop + 1
MFS loop	Test and enable MFS loop
STAT loop	Get status of MFS loop
TONE loop	Enter input mode to provide MF tone bursts
TONE loop ALL	Provide MF tone bursts for all digits on specified loop

Alphabetical list of commands

Command	Description	Pack/Rel
CDSP	Clear the maintenance display on active CPU to 00 or blank.	basic-1
CMAJ	Clear major alarm, reset power fail transfer and clear power fault alarm.	basic-1
CMIN	Clear the minor lamp on a system basis.	alrm_filter-22
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
DISL loop	Disable MFS loop. For NT8D17 Conference/TDS/MFS cards, see ENLL command.	basic-1
	Where:	fnf-25
	• loop = 0-254, Option 81C with Fiber Network Fabric	
DISX loop	Disable NT8D17 Conference/TDS/MFS card on loop and loop + 1.	xct-15
	Disables the entire combined Conference, Tone and Digit Switch, and MF Sender (XCT) card. Both the even numbered TDS/MFS loop and adjacent conference loop are disabled.	
	Where:	fnf-25
	• loop = 0, 2, 4,. . . 254, Option 81C with Fiber Network Fabric	
	The DISL and ENLL commands can be used on the even number loop for the TDS/MFS functions. However, this only prevents the loop from being used by software and does not affect the hardware status of the card.	
	The ENLX and DISX commands are recommended. The ENLX command must be used if the DISX command was used to disable the card.	
	This command can be used in LD 34, LD 38 and LD 46.	
	Where:	fnf-25
	• loop = 0-254, Option 81C with Fiber Network Fabric	
END	Stop all current testing.	basic-1

ENLL loop	Enable loop.	basic-1
	For NT8D17 Conference/TDS/MFS cards the DISX and ENLX commands must be used whenever the faceplate switch of the card has been toggled. ENLL will software enable the card but the card will not be properly reset.	
	Where:	fnf-25
	• loop = 0-255, Option 81C with Fiber Network Fabric	
ENLX loop	Enable NT8D17 Conference/TDS/MFS card on loop and loop + 1.	xct-15
	Enables all functions on the NT8D17 Conference/TDS card. Both the even numbered TDS/MFS loop and adjacent conference loop are enabled.	
	Where:	fnf-25
	• loop = 0, 2, 4. . . 254, Option 81C with Fiber Network Fabric	
	If one of the loops is already enabled, it is disabled and then both loops are enabled. Enabling more than 16 conference loops may cause system to lock-up.	
	This command initiates card tests, downloads software and can be used in LD 34, LD 38 and LD 46.	
	The DISL and ENLL commands can be used on the even number loop for the TDS/MFS functions. However, this only prevents the loop from being used by software and does not affect the hardware status of the card. The ENLX and DISX commands are recommended.	
	The Conf/TDS card is not enabled automatically when it is inserted.	
	Where:	fnf-25
	• loop = 0-254, Option 81C with Fiber Network Fabric	
MFS loop	Test and enable MFS loop.	basic-1
STAT loop	Get status of MFS loop. Response is:	basic-1
	• `LOOP UNEQ`—loop is unequipped • `LOOP DSBL`—loop is disabled • `CHAN yy`—number of channels busy • `xx DSBL yy BUSY`—number of channels disabled & busy • `NOT MFS`—loop is not an MFS loop	

	Where: • loop = 0-255, Option 81C with Fiber Network Fabric	fnf-25
TONE loop	Enter input mode to provide MF tone bursts.	basic-1
TONE loop ALL	Provide MF tone bursts for all digits on specified loop (1 to 9, 0, 11 to 15, in that order).	basic-1

LD 48: Link Diagnostic

The Link Diagnostic program is used to maintain data links used with various special features and auxiliary data links. A maintenance telephone cannot use LD 48.

Automatic Call Distribution Links

When equipped with the Automatic Call Distribution (ACD) feature, the Meridian 1/Meridian SL-1 is supplemented with an Auxiliary Data Store (ADS) minicomputer system. The auxiliary data processor is located external to the Meridian 1/Meridian SL-1 and is connected via a high-speed link and a low-speed link.

The high-speed link is used for transmission of ACD-related messages between the Meridian 1/Meridian SL-1 and the auxiliary processor; the low-speed link is used for transmission of maintenance/error messages between the maintenance TTY (connected to the Meridian 1/Meridian SL-1) and the auxiliary processor.

> ***Note:*** When enabling a high-speed link (using the command "ENL HSL" or "ENL SDI HIGH" in LD 48), the craftsperson must log out of the TTY to receive a message from the switch which confirms that the high-speed link (HSL) has been enabled.

Each Auxiliary Processor Link (APL) consists of a single Serial Data Interface (SDI) port connected via an interface cable to an interface port on the auxiliary processor.

ACD High speed and low speed link monitor

The ACD monitor diagnoses messages which flow across the link. This tool is useful to someone experienced with message formats and protocols.

APL monitor

The APL monitor is a tool used to diagnose the messages flowing across the link. This is only useful for someone experienced with the message formats and protocols.

Integrated Messaging System Links

The link maintenance capabilities provided for Integrated Messaging System (IMS) and Integrated Voice Messaging System (IVMS) links allow the link to be disabled/enabled and put into the maintenance mode.

The link software/hardware status can also be displayed. The program allows the craftsman to request that the printouts of all packed and/or unpacked messages be sent over a specified APL link.

Using print options (packed/unpacked messages) and observing the patterns of messages sent over the link, the most probable fault location (AUX, Meridian 1/Meridian SL-1 or SDI cable) can be determined.

Command and Status Links (CSL)

The Command and Status Link is an application protocol used for communication between the Meridian 1/Meridian SL-1 CPU and an external Value Added Server such as the Meridian Mail MP. The CSL runs on an Enhanced Serial Data Interface (ESDI) card.

In addition to the tests in LD 48, resident firmware diagnostics for the CSLs and ESDIs can output CSA, ESDA, ESDI error messages.

Multi-purpose Serial Data Link (MSDL)

MSDL provides 4 ports for applications such as ISDN Primary Rate D-channels (DCH) and Application Module Links (AML) and SDI functions.

The MSDL commands are listed below, where x is the MSDL device number (defined by prompt DNUM in LD 17). These are provided in Link Diagnostic (LD 48) and D-channel Maintenance (LD 96), and I/O Diagnostic (LD 37).

DIS MSDL x (ALL) — Disable MSDL card
ENL MSDL x (FDL, ALL) — Enable MSDL card
RST MSDL x — Reset MSDL card
STAT MSDL (x (FULL)) — Get MSDL status
SLFT MSDL x — Execute a self-test on MSDL card x

These are provided in Link Diagnostic (LD 48) and D-channel Maintenance (LD 96), and I/O Diagnostic (LD 37) Overlays.

Application Module Link (AML)

An Application Module Link (AML) provides a connection to applications such as Meridian Link. The AML is configured on an Enhanced Serial Data Interface (ESDI) or Multipurpose Serial Data Link (MSDL) card.

AML/CSL monitor

The AML monitor is a tool used to diagnose the messages flowing across the link. This is only useful for someone experienced with the message formats and protocols.

ISDN BRI monitor

This capability is used to monitor input/output messages to the MISP and SILC/UILC. This is only useful for someone experienced with the message formats and protocols. A password is required for DGB and MON options. The SETM TNx, RSET TNx and RSET ALL commands are also available for digital telephones.

Caution: Use of the SETM MISP loop MON commands may use all system printing registers and cause an initialization.

Single Terminal Access (STA)

Single Terminal Access (STA) is an application available on the MSDL card. The STA application reduces the number of physical devices used to administer and maintain the Meridian 1 and its auxiliary processors.

Voice Mailbox Administration (VMBA)

Voice Mailbox Administration (VMBA) allows for Integrated Voice Mailbox Administration when using Meridian Mail.

Fiber Network Fabric

The Fiber Network Fabric extends and enhances the 5-group network architecture to 8 non-blocking (inter-group) Network groups, with a resulting expansion in network capacity to 8k timeslots available for Intergroup traffic. This is achieved by using OC-12 SONET rings, and adding additional network and PE shelves, cards and cables and software changes to allow using the expanded network capacity. This expansion increases the number of available loops from 160 to 256. This applies to the Option 81C only.

D-channel Expansion

With the introduction of D-channel Expansion, new software allows the increase of D-channels past sixty-four. Instead of the Meridian 1 system having a maximum of 16 I/O addresses, the new software allows 16 physical I/O addresses (0 - 15) per network group for D-channels defined on MSDL. With this enhancement a response to the system response GROUP is required to inform the system of the desired network group.

Basic commands

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Basic commands

CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c
DIS AML x	Disable AML x
DIS AML x AUTO	Disable AUTO recovery on AML x (MSDL only)
DIS AML x LYR2	Disable layer two on AML x
DIS AML x LYR7	Disable layer seven on AML x
DIS AML x MDL	Disable MDL error reporting on AML x (MSDL only)
DIS AML x MON	Disable monitor on AML x (MSDL only)
DIS APL x	Put software AUX link x in maintenance mode
DIS HSL	Disable the high-speed link
DIS ICP x	Put ICP link x into maintenance mode
DIS ISDI x	Disable hardware AUX link SDI x
DIS MON	Disable the monitor-bit of high-speed link data
DIS MSDL x (ALL)	Disable MSDL device x
DIS MSGI x	Disable the MSGI option
DIS MSGO x	Disable the MSGO option
DIS PACI x	Disable the PACI option
DIS PACO x	Disable the PACO option
DIS PPRT x	Disable packet message print option on link x
DIS PRNT	Disable the print-bit of high-speed link data
DIS SDI HIGH	Disable the SDI port for high-speed link
DIS SDI LOW	Disable the SDI port for low-speed link
DIS STA x	Disable the STA application.
DIS UPRT x	Disable unpacket message print on AUX link x
DSC ESDI x	Disconnect the link
DSIC LSTI x	Disable printing of lost input messages on link x
DSIC LSTO x	Disable printing of lost output messages on link x
DSIC MSGI x	Disable printing of input messages on link x at input queue level
DSIC MSGO x	Disable printing of output messages on link x at output queue level
DSIC PACI x	Disable printing of input messages on link x at input buffer level
DSIC PACO x	Disable printing of output messages on link x at output buffer level
ENIC LSTI x	Enable printing of lost input messages on link x
ENIC LSTO x	Enable printing of lost output messages on link x
ENIC MSGI x	Enable printing of messages on link x at input queue level
ENIC MSGO x	Enable printing of messages on link x at output queue level

ENIC PACI x	Enable printing of input messages on link x at input buffer level
ENIC PACO x	Enable printing of output messages on link x at output buffer level
ENL AML x	Enable AML x
ENL AML x ACMS	Enable automatic set-up on AML x (ESDI only)
ENL AML x AUTO	Enable AUTO recovery on AML x (MSDL only)
ENL AML x FDL	Force download loadware to the MSDL card and enable AML x
ENL AML x LYR2	Enable layer two on AML x
ENL AML x LYR7	Enable layer seven on AML x
ENL AML x MDL	Enable MDL error reporting on AML x (MSDL only)
ENL AML x MON	Enable monitor on AML x (MSDL only)
EST AML x	Establish layer two on AML x
ENL APL x	Put software AUX link x in non-maintenance mode
ENL HSL	Enable the high-speed link
ENL ICP x	Enable ICP link x
ENL ISDI x	Enable AUX link SDI x
ENL MON	Print software information at maintenance TTY
ENL MSDL x (ALL, FDL)	Enable MSDL device x
ENL MSGI x	Print incoming messages from link x
ENL MSGO x	Print outgoing messages from link x
ENL PACI x	Print incoming messages from link x
ENL PACO x	Print outgoing messages from link x
ENL PPRT x	Enable packet message print option on link x
ENL PRNT	Connect high-speed link to TTY
ENL SDI HIGH	Enable SDI port for high-speed link
ENL SDI LOW	Enable SDI port for low-speed link
ENL UPRT x	Enable unpacked message print on link x
ENLX MSGI x p	Output incoming priority p messages from link x
ENLX MSGO x p	Output outgoing priority p messages from link x
ENL STA x (FDL)	Enable STA application. The MSDL card must be enabled to implement this command.
ICP ADD xxxx	Set up additional information xxxx to be used in the ICP message
ICP CLR	Clear previous ICP message set up without sending it
ICP DN xxxx	Set up ICP DN xxxx to be used in the ICP message
ICP IPN xx	Set up IPN number xx to be used in the ICP message
ICP LINK xx	Set up ICP link x to be used in the ICP message
ICP RSN x	Set up the intercept transfer reason x to be used in the ICP message
ICP SEND xx yy	Send the defined ICP message number xx, yy times

ICPM	Access ICP maintenance commands
MAP AML (x)	Get physical address and card name of one or all AMLs
MAP STA x	Get information relating to the STA application.
PSWD	Enter password to use ICP maintenance commands
RLS AML x	Release layer two on AML x
RSET ALL	Stop printing all messages on a line card
RSET BRIM	Stop printing of messages on SILC/UILC, MISP or digital line card
RSET IFx 1 PDL2 1	Stop printing SAPI 16 interface messages.
RSET IFx 1 PDNI n	Stop printing network interface messages.
RSET IFx l s c u BCH x	Stop printing B-channel terminal interface messages.
RSET IFx l s c u DCHx	Stop printing D-channel terminal interface messages.
RESET IMSG l s c dsl	Disable monitoring on incoming
RSET MISP loop AMO	Stop MISP printing of audit messages on MISP card
RSET MISP loop DGB	Exit MISP debug
RSET MISP loop MNT	Stop MISP printing of status messages on MISP card
RSET MISP loop MON	Stop printing of input/output messages on MISP card
RSET MPHM	Stop all Meridian Packet Handler message monitoring.
RSET OMSG l s c dsl	Disable monitoring on outgoing
RSET TNx	Stop printing messages on an ISDN BRI line card
RST MSDL x	Reset MSDL device x
SETM BRIM xxxx	Set printing of messages on SILC/UILC, MISP or digital line card
SETM IFx 1 PDL2 1	Set printing of SAPI 16 interface messages
SETM IFx 1 PDNI n	Set printing of network interface messages.
SETM IFx l s c u BCHx	Set printing of B-channel terminal interface messages.
SETM IFx l s c u DCHx	Set printing of D-channel terminal interface messages.
SETM IMSG l s c dsl MON x	Set monitor on incoming msg
SETM MISP loop AMO	Set printing of audit messages on MISP card
SETM MISP loop DBG	Set debug option on MISP card
SETM MISP loop MNT	Set printing of status messages on MISP card
SETM MISP loop MON	Set printing of input/output messages on MISP card
SETM MPHM xxxx	Set printing of Meridian Packet Handler messages. Where: xxxx = the MPHs to be monitored
SETM OMSG l s c dsl MON x	Set monitor on outgoing msg
SETM TNx l s c u, 31	Set printing messages on a digital line card unit (u) or ISDN BRI line card (31)
SETM TNx l s c u, dsl	Set printing messages on a unit
SLFT AML x	Invoke self-test for AML x
SLFT MSDL x	Invoke self-test for MSDL device x

STAT AML (x)	Get AML status
STAT APL x	Display status of AUX link x
STAT CNFG	Get status of link monitor/simulator configuration
STAT CSDI x	Get status of SDI port x
STAT DSP LNK x	Get status of all Displays on link x
STAT HSL	Get high-speed link status
STAT ICP (x)	Display software status of one or all ICP links
STAT ISDI x	Get status of hardware AUX link SDI x
STAT LSL	Get low-speed link status
STAT MON (x)	Get status of one or all message monitors
STAT MSDL (x [FULL])	Get MSDL status
STAT SDI HIGH	Get status of high-speed link port
STAT SDI LOW	Get status of low-speed link port
STAT STA x	Get status of STA application.
SWCH AML x y	Switch active (x) and standby (y) AML
UPLD AML x TBL x	Upload parameter Table 1 to 4 from AML x (MSDL only)

ACD High speed and low speed link commands

The following commands are used to enable, disable, test and check the status of an APL link.

> ***Note:*** When enabling a high-speed link (using the command "ENL HSL" or "ENL SDI HIGH" in LD 48), the craftsperson must log out of the TTY to receive a message from the switch which confirms that the high-speed link (HSL) has been enabled.

DIS HSL	Disable the high-speed link
DIS SDI HIGH	Disable the SDI port for high-speed link
DIS SDI LOW	Disable the SDI port for low-speed link
ENL HSL	Enable the high-speed link
ENL SDI HIGH	Enable SDI port for high-speed link
ENL SDI LOW	Enable SDI port for low-speed link
STAT HSL	Get high-speed link status
STAT LSL	Get low-speed link status
STAT SDI HIGH	Get status of high-speed link port
STAT SDI LOW	Get status of low-speed link port

ACD High speed and low speed link monitor commands

The monitor is a tool used to diagnose the messages flowing across the link. This is only useful for someone experienced with the message formats and protocols.

DIS MON	Disable the monitor-bit of high-speed link data
DIS PRNT	Disable the print-bit of high-speed link data
ENL MON	Print software information at maintenance TTY
ENL PRNT	Connect high-speed link to TTY
STAT MON (x)	Get status of one or all message monitors

AML commands

The AML commands are listed below, where **x** is the AML logical device number (defined by prompt ADAN in LD 17). Some of these commands only apply to AMLs on an MSDL card.

DIS AML x	Disable AML x
DIS AML x AUTO	Disable AUTO recovery on AML x (MSDL only)
DIS AML x LYR2	Disable layer two on AML x
DIS AML x LYR7	Disable layer seven on AML x
DIS AML x MDL	Disable MDL error reporting on AML x (MSDL only)
DIS AML x MON	Disable monitor on AML x (MSDL only)
ENL AML x	Enable AML x
ENL AML x ACMS	Enable automatic set-up on AML x (ESDI only)
ENL AML x AUTO	Enable AUTO recovery on AML x (MSDL only)
ENL AML x FDL	Force download loadware to the MSDL card and enable AML x
ENL AML x LYR2	Enable layer two on AML x
ENL AML x LYR7	Enable layer seven on AML x
ENL AML x MDL	Enable MDL error reporting on AML x (MSDL only)
ENL AML x MON	Enable monitor on AML x (MSDL only)
EST AML x	Establish layer two on AML x
MAP AML (x)	Get physical address and card name of one or all AMLs
RLS AML x	Release layer two on AML x
SLFT AML x	Invoke self-test for AML x
STAT AML (x)	Get AML status
SWCH AML x y	Switch active (x) and standby (y) AML
UPLD AML x TBL x	Upload parameter table 1 to 4 from AML x (MSDL only)

AML over Ethernet (ELAN) commands

DIS ELAN	Disable ELAN (server task)
DIS ELAN x	Disable ELAN link number x (client task)
ENL ELAN	Enable ELAN (server task)
STAT ELAN	Check status of all configured ELANs
STAT ELAN	Check status of ELAN xx

AML/CSL monitor commands

The AML monitor is a tool used to diagnose the messages flowing across the link. This is only useful for someone experienced with the message formats and protocols. These commands apply to CSLs or AMLs on ESDI cards and AMLs on MSDL cards.

DIS MSGI x	Disable output of incoming layer seven messages on AML x
DIS MSGO x	Disable output of outgoing layer seven messages on AML x
DIS PACI x	Disable output of incoming layer two messages on AML x
DIS PACO x	Disable output of outgoing layer two messages on AML x
DISM MSGI <link#><msg1><msg2>...	Disable message input/output monitoring excluding those specified incoming messages
DISM MSGO <link#><msg1><msg2>...	Disable message input/output monitoring excluding those specified outgoing messages
DSIM MSGI <link#>	Disable inclusive incoming message monitoring
DSIM MSGO <link#>	Disable inclusive outgoing message monitoring
DSIP MSGI <link#><pri><pri>...	Disable monitoring of inclusive priorities on incoming messages
DSIP MSGO <link#><pri><pri>...	Disable monitoring of inclusive priorities on outgoing messages
DSIT MSGI <link#><l><s><c><u>	Disable inclusive TN incoming message monitoring
DSIT MSGO <link#><l><s><c><u>	Disable inclusive TN outgoing message monitoring
DSXP MSGI <link#><pri><pri>...	Disable monitoring of exclusive priorities on incoming messages
DSXP MSGO <link#><pri><pri>...	Disable monitoring of exclusive priorities on outgoing messages
DSXT MSGI <link#><l><s><c><u>	Disable exclusive TN incoming message monitoring
DSXT MSGO <link#><l><s><c><u>	Disable exclusive TN outgoing message monitoring
ENIM MSGI <link#><msg1><msg2>...	Enable inclusive input/output message monitoring of only those specified incoming messages
ENIM MSGO <link#><msg1><msg2>...	Enable inclusive input/output message monitoring of only those specified outgoing messages
ENIP MSGI <link#><pri><pri>...	Enable inclusive input/output monitoring of incoming messages with specified priorities

ENIP MSGO <link#><pri><pri>...	Enable inclusive input/output monitoring of outgoing messages with specified priorities
ENIT MSGI <link#><l><s><c><u>	Enable inclusive input/output monitoring of incoming messages with specified TN
ENIT MSGO <link#><l><s><c><u>	Enable inclusive input/output monitoring of outgoing messages with specified TN
ENL MSGI x	Enable output of incoming layer seven messages on AML x
ENL MSGO x	Enable output of outgoing layer seven messages on AML x
ENL PACI x	Enable output of incoming layer two messages on AML x
ENL PACO x	Enable output of incoming layer two messages on AML x
ENXM MSGI <link#><msg1><msg2>...	Enable message input/output monitoring excluding those specified incoming messages
ENXM MSGO <link#><msg1><msg2>...	Enable message input/output monitoring excluding those specified outgoing messages
ENXP MSGI <link#><pri><pri>...	Enable input/output incoming message monitoring excluding messages with specified priorities
ENXP MSGO <link#><pri><pri>...	Enable input/output outgoing message monitoring excluding messages with specified priorities
ENXT MSGI <link#><l><s><c><u>	Enable input/output message monitoring excluding incoming messages with specified TN
ENXT MSGO <link#><l><s><c><u>	Enable input/output message monitoring excluding outgoing messages with specified TN
FLSH	Disable monitor and flash buffers
STAT MON (x)	Get status of one or all message monitors

Auxiliary Processor Link (APL) commands

The following commands are used to enable, disable, test and check the status of an APL link.

DIS APL x	Put software AUX link x in maintenance mode
DIS ISDI x	Disable hardware AUX link SDI x
ENL APL x	Put software AUX link x in non-maintenance mode
ENL ISDI x	Enable AUX link SDI x
STAT APL x	Display status of AUX link x
STAT DSP LNK x	Get status of all Displays on link x
STAT ISDI x	Get status of hardware AUX link SDI x

APL monitor commands

The APL monitor is a tool used to diagnose the messages flowing across the link. This is only useful for someone experienced with the message formats and protocols.

DIS PPRT x	Disable packet message print option on link x
DIS UPRT x	Disable unpacket message print on AUX link x
ENL PPRT x	Enable packet message print option on link x
ENL UPRT x	Enable unpacked message print on link x
ENLX MSGI x p	Output incoming priority p messages from link x
ENLX MSGO x p	Output outgoing priority p messages from link x
STAT CNFG	Get status of link monitor/simulator configuration
STAT CSDI x	Get status of SDI port x
STAT DSP LNK x	Get status of all Displays on link x

D-channel Expansion commands

Commands	System Response	Description
DIS MSDL n all	GROUP	Disable the given MSDL card. All the configured ports should be in the disable state, otherwise the MSDL card can not be disabled.
DIS MSDL n ALL	GROUP	Disable all ports of the MSDL card, and then disable the MSDL card.
DIS MSDL n AUDM	GROUP	Disable the msdl auditing for the MSDL card.
DIS MSDL n DBG	GROUP	Disable the debugger option for the MSDL card.
DIS MSDL n FCTL	GROUP	Disable the flow control for the MSDL card.
DIS MSDL n MSGI	GROUP	Disable the incoming message monitor option for the MSDL card.
DIS MSDL n MSGO	GROUP	Disable the outgoing message monitor option for the MSDL card.
ENL MSDL n	GROUP	Enable the given MSDL card.
ENL MSDL n all	GROUP	Enable MSDL card n and all configured ports.
ENL MSDL n AUDM	GROUP	Enable the msdl auditing for the MSDL card.
ENL MSDL n DBG	GROUP	Enable the debugger option for the MSDL card.
ENL MSDL n FCTL	GROUP	Enable flow control for the MSDL card.

ENL MSDL n FDL	GROUP	Force download all the required Loadware to the MSDL card and enable the MSDL card.
ENL MSDL n MSGO	GROUP	Enable the outgoing message monitor option for the MSDL card.
ENL MSDL n MSGI	GROUP	Enable the incoming message monitor option for the MSDL card.
RST MSDL n	GROUP	This command causes a power-on reset on the MSDL card.
SLFT MSDL n	GROUP	Power-on reset on the MSDL card, followed by a complete set of self tests.
STAT MSDL	GROUP	Display status of all MSDL cards in the system.
STAT MSDL n	GROUP	Display status of the given MSDL card as known to the SL1.
STAT MSDL n full	GROUP	Display status of the given MSDL card as known to the SL1 and available in the shared RAM of the MSDL card.
STAT MSDL n MON	GROUP	Display the current message monitoring and debug option for the given MSDL card.

Intercept Computer Update (ICU) commands

DIS ICP x	Put ICP link x into maintenance mode
DSIC LSTI x	Disable printing of lost input messages on link x
DSIC LSTO x	Disable printing of lost output messages on link x
DSIC MSGI x	Disable printing of input messages on link x at input queue level
DSIC MSGO x	Disable printing of output messages on link x at output queue level
DSIC PACI x	Disable printing of input messages on link x at input buffer level
DSIC PACO x	Disable printing of output messages on link x at output buffer level
ENIC LSTI x	Enable printing of lost input messages on link x
ENIC LSTO x	Enable printing of lost output messages on link x
ENIC MSGI x	Enable printing of messages on link x at input queue level
ENIC MSGO x	Enable printing of messages on link x at output queue level
ENIC PACI x	Enable printing of input messages on link x at input buffer level
ENIC PACO x	Enable printing of output messages on link x at output buffer level
ENL ICP x	Enable ICP link x
ICP LINK xx	Set up ICP link x to be used in the ICP message
ICP DN xxxx	Set up ICP DN xxxx to be used in the ICP message
ICP IPN xx	Set up IPN number xx to be used in the ICP message
ICP RSN x	Set up the intercept transfer reason x to be used in the ICP message
ICP ADD xxxx	Set up additional information xxxx to be used in the ICP message
ICP CLR	Clear previous ICP message set up without sending it
ICP SEND xx yy	Send the defined ICP message number xx, yy times
ICPM	Access ICP maintenance commands
PSWD	Enter password to use ICP maintenance commands
STAT ICP (x)	Display software status of one or all ICP links

ISDN BRI monitor commands

These commands are used to monitor input/output messages to the MISP, and SILC/UILC. This is only useful for someone experienced with the message formats and protocols. A password is required for DGB and MON options. The SETM TNx, RSET TNx and RSET ALL commands are also available for digital telephones.

Caution: Use of the SETM MISP loop MON commands may use all system printing registers and cause an initialization.

RSET ALL	Reset (turn off) printing of messages for all terminal numbers associated with TN0-TN6.
RSET BRIM	Stop printing of messages on SILC/UILC, MISP or digital line card.
RSET MISP x AMO	Stop printing of audit messages on MISP specified.
RSET MISP x DGB	Exit MISP debug.
RSET MISP x MNT	Stop printing status messages on MISP specified.
RSET MISP x MON	Stop printing input/output messages on MISP specified.
RSET TNx	Stop printing of messages for terminal number associated with TNx. TNx is associated with the terminal number by the SETM TNx command.
SETM BRIM xxxx	Set printing of selected message types for MISP, SILC/UILC or digital line cards.
SETM MISP x AMO	Set printing of audit messages on MISP specified. The SETM TNx command must have been issued before issuing this command.
SETM MISP x DBG	Set debug option for the MISP specified. DISABLE MISP prior to issuing this command, re-enable MISP after command issued.
SETM MISP x MNT	Set printing of maintenance messages for the MISP specified.
SETM MISP x MON	Set printing of input/output messages for the MISP specified.
SETM TNx l s c u, dsl	Set printing messages on a unit
SETM TNx l s c u, 31	Set printing messages on a digital line card unit (u) or ISDN BRI line card (31)
SETM TNx y	Set printing of messages for specified digital line card unit or ISDN BRI line card.

Multipurpose Serial Data Link (MSDL) commands

The MSDL commands are listed below, **x** is the MSDL device number (defined by prompt DNUM in LD 17). These commands are also provided in Input/Output Diagnostic (LD 37) and D-channel Diagnostic (LD 96).

DIS MSDL x (ALL)	Disable MSDL device x
ENL MSDL x (ALL, FDL)	Enable MSDL device x
RST MSDL x	Reset MSDL device x
SLFT MSDL x	Invoke self-test for MSDL device x
STAT MSDL (x [FULL])	Get MSDL status

Single Terminal Access (STA) commands

Single Terminal Access (STA) is an application available on the MSDL card. The STA application reduces the number of physical devices used to administer and maintain the Meridian 1 and its auxiliary processors. Refer to the *System Management Applications* (553-3001-301) for complete details.

DIS STA x	Disable the STA application
ENL STA x (FDL)	Enable STA application
MAP STA x	Get information relating to the STA application
STAT STA x	Get status of STA application

Voice Mailbox Administration (VMBA) commands

Voice Mailbox Administration (VMBA) allows for Integrated Voice Mailbox Administration when using Meridian Mail. Refer to the *Features and Services* (553-3001-306) for complete details.

DIS VMBA <vsid>	Disable the Voice Mailbox Administration application
DIS VMBA <vsid> AUDT	Disable the mailbox database audit
DIS VMBA <vsid> UPLD	Disable the mailbox database upload
ENL VMBA <vsid>	Enable the Voice Mailbox Administration application
ENL VMBA <vsid> AUDT	Enable the mailbox database audit
ENL VMBA <vsid> UPLD	Enable the mailbox database upload
STAT VMBA <vsid>	Get the status for the Voice Mailbox Administration application
STAT VMBA <vsid> AUDT	Get the status for the Voice Mailbox database audit
STAT VMBA <vsid> UPLD	Get the status for the Voice Mailbox database upload

Alphabetical list of commands

Command	Description	Pack/Rel
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
CMIN c	Clear minor alarm indication on attendant consoles for customer c.	basic-1
DIS AML x	Disable AML x. Whenever the third parameter (LYR2, LYR7, etc.) is not typed, the overlay defaults the third parameter of the DIS command to LYR2. Therefore, this command is equivalent to DIS AML x LYR2. Refer to DIS AML x LYR2 command definition, for more information.	msdl-18
DIS AML x AUTO	Disable AUTO recovery on AML x (MSDL only). This command is not available for an ESDI AML.	msdl-18
DIS AML x LYR2	Disable layer two on AML x. MSDL Requirement: The MSDL card must be enabled. The AML link state can be any state other than the disabled state, and should not be in the process of self-test. Example: ENL MSDL x followed by ENL AML x LYR2 must have been executed at an earlier time. MSDL Action: The AML link state is changed to the disable state. The MSDL port on which the AML is configured is disabled. ESDI: The ESDI port is disabled. The port must be idle.	msdl-18
DIS AML x LYR7	Disable layer seven on AML x. The MSDL or ESDI card must be enabled. The AML layer two must be enabled and established, and AML layer seven must also be enabled. Example: ENL MSDL x followed by ENL AML x LYR2 followed by EST AML x followed by ENL AML x LYR7 must have been executed at an earlier time. **Action:** A request to disable the AML layer seven is issued. SL-1 will stop sending polling messages to the far-end.	msdl-18

DIS AML x MDL	Disable MDL error reporting on AML x (MSDL only). MSDL Requirement: The MSDL card must be enabled. The AML layer two must be enabled. Example: ENL MSDL x followed by ENL AML x LYR2 must have been executed at an earlier time. MSDL Action: The MSDL AML loadware command to disable the debug monitor is sent to the MSDL card. This command is not available for ESDI AML.	msdl-18
DIS AML x MON	Disable monitor on AML x (MSDL only). MSDL Requirement: The MSDL card must be enabled. The AML layer two must be enabled. Example: ENL MSDL x followed by ENL AML x LYR2 must have been executed at an earlier time. MSDL Action: The MSDL AML loadware command to disable the debug monitor is sent to the MSDL card. This command is not available for ESDI AML.	msdl-18
DIS APL x	Put software AUX link x in maintenance mode.	apl-1
DIS ELAN	Disable the ELAN (server task)	nxcc-22
DIS ELAN x	Disable ELAN link number x (client task) If the application ELAN client task cannot be established from the Meridian 1, the Meridian 1 can disable the client task with this command.	nxcc-22
DIS HSL	Disable the high-speed link.	lnk-2
DIS IALM <vsid>	Disable the integrated alarms application on the specified VAS. A VAS011 message is printed indicating the application has been disabled.	ialm-21
DIS ICP x	Put ICP link x into maintenance mode.	icp-5
DIS ISDI x	Disable hardware AUX link SDI x.	apl-1
DIS MON	Disable the monitor-bit of high-speed link data.	apl-1

DIS MSDL n all	Disable the given MSDL card. All the configured ports should be in the disable state, otherwise the MSDL card can not be disabled.	basic-25
DIS MSDL n ALL	Disable all ports of the MSDL card, and then disable the MSDL card.	basic-25
DIS MSDL x (ALL)	Disable MSDL device. When entered without the optional parameter, the disable MSDL command attempts to disable the MSDL card. Disabling the card via this command is permitted from either the Enabled (ENBL) state or the System Disabled (SYS DSBL) state. When attempted on an MSDL that does not have any ports enabled, this command will succeed. The only exception to this is when the disable card message needs to be sent to the card, and there is no buffer currently available for building the message (MSDL015 is output to the TTY). In this unusual situation, attempting the command again will most likely result in success. Application Overlays are not erased when the MSDL is disabled. If there are any ports that are still running in the MSDL card, the 'ALL' option must be used to force disable the active ports. As an alternative to this command, the craftsperson can use the commands provided by the applications to disable the ports (D-channels or AML) individually, and then use the 'DIS MSDL x' command. The command 'DIS MSDL x ALL' is not allowed if the active TTY (the terminal from which the command was entered) is supported on the MSDL card in question. Software disable the logical channel prior to disabling the physical DNUM port.	msdl-18
DIS MSDL n AUDM	Disable the msdl auditing for the MSDL card.	basic-25
DIS MSDL n DBG	Disable the debugger option for the MSDL card.	basic-25
DIS MSDL n FCTL	Disable the flow control for the MSDL card.	basic-25

DIS MSDL n MSGI	Disable the outgoing message monitor option for the MSDL card.	basic-25
DIS MSGI x	Disable printing of messages on link x at input queue level. Disable output of incoming layer seven messages on AML x.	csl-8
DIS MSGO x	Disable printing of messages on link x at output queue level. Disable output of outgoing layer seven messages on AML x.	csl-8
DIS PACI x	Disable printing of input messages on link x at input buffer level. (disable output of incoming layer two messages on AML x)	csl-8
DIS PACO x	Disable printing of output messages on link x at output buffer level. (disable output of outgoing layer two messages on AML x)	csl-8
DIS PPRT x	Disable packet message print option on link x.	apl-1
DIS PRNT	Disable the print-bit of high-speed link data.	apl-1
DIS SDI HIGH	Disable the SDI port for high-speed link.	lnk-2
DIS SDI LOW	Disable the SDI port for low-speed link.	lnk-2
DIS STA x	Disable the STA application. This command disables the application, the administration port, and any other additional ports. The associated ports must be disabled before using this command. x = the logical ID number identifying the STA application.	sta-19
DIS UPRT x	Disable unpacket message print on AUX link x.	apl-1
DIS VMBA <vsid>	Disable the Voice Mailbox Administration application. This command is used to disable the Voice Mailbox Application. Enter the command in the following format: • `DIS VMBA <vsid> <NNNN>`	vmba-19

Where:

- `vsid` = The VAS ID number associated with VMBA.
- `NNNN` = AUDT or UPLD for the database audit or upload.

AUDT and UPLD are optional entries. The VAS ID must be entered.

The Voice Mailbox audit and upload functions are aborted when the application is disabled. Be sure to get the status of those functions before disabling the application.

DIS VMBA <vsid> AUDT — vmba-19

Disable the mailbox database audit. This command aborts the audit function whether it was invoked manually or automatically.

DIS VMBA <vsid> UPLD — vmba-19

Disable the mailbox database upload. This command aborts the audit function whether it was invoked manually or automatically.

DISM MSGI <link#><msg1><msg2>... — nxcc-22

Disable message input/output monitoring excluding those specified incoming messages

DISM MSGO <link#><msg1><msg2>... — nxcc-22

Disable message input/output monitoring excluding those specified outgoing message**s**

DSIC LSTI x	Disable printing of lost input messages on link x.	icp-5
DSIC LSTO x	Disable printing of lost output messages on link x.	icp-5
DSIC MSGI x	Disable printing of input messages on link x at input queue level.	icp-5
DSIC MSGO x	Disable printing of output messages on link x at output queue level.	icp-5
DSIC PACI x	Disable printing of input messages on link x at input buffer level.	icp-5
DSIC PACO x	Disable printing of output messages on link x at output buffer level.	icp-5

DSIM MSGI <link#>	Disable inclusive incoming message monitoring	nxcc-22
DSIM MSGO <link#>	Disable inclusive outgoing message monitoring	nxcc-22
DSIP MSGI <link#><pri><pri>...	Disable monitoring of inclusive priorities on incoming messages	nxcc-22
DSIP MSGO <link#><pri><pri>...	Disable monitoring of inclusive priorities on outgoing messages	nxcc-22
DSIT MSGI <link#><l><s><c><u>	Disable inclusive TN incoming message monitoring	nxcc-22
DSIT MSGO <link#><l><s><c><u>	Disable inclusive TN outgoing message monitoring	nxcc-22
DSXP MSGI <link#><pri><pri>...	Disable monitoring of exclusive priorities on incoming messages	nxcc-22
DSXP MSGO <link#><pri><pri>...	Disable monitoring of exclusive priorities on outgoing messages	nxcc-22
DSXT MSGI <link#><l><s><c><u>	Disable exclusive TN incoming message monitoring	nxcc-22
DSXT MSGO <link#><l><s><c><u>	Disable exclusive TN outgoing message monitoring	nxcc-22
ENIC LSTI x	Enable printing of lost input messages on link x.	icp-5
ENIC LSTO x	Enable printing of lost output messages on link x.	icp-5
ENIC MSGI x	Enable printing of messages on link x at input queue level.	icp-5
ENIC MSGO x	Enable printing of messages on link x at output queue level.	icp-5

ENIC PACI x	Enable printing of input messages on link x at input buffer level.	icp-5
ENIC PACO x	Enable printing of output messages on link x at output buffer level.	icp-5
ENIM MSGI <link#><msg1><msg2>...	Enable inclusive input/output message monitoring of only those specified incoming messages	nxcc-22
ENIM MSGO <link#><msg1><msg2>...	Enable inclusive input/output message monitoring of only those specified outgoing messages	nxcc-22
ENIP MSGI <link#><pri><pri>...	Enable inclusive input/output monitoring of incoming messages with specified priorities	nxcc-22
ENIP MSGO <link#><pri><pri>...	Enable inclusive input/output monitoring of outgoing messages with specified priorities	nxcc-22
ENIT MSGI <link#><l><s><c><u>	Enable inclusive input/output monitoring of incoming messages with specified TN	nxcc-22
ENIT MSGO <link#><l><s><c><u>	Enable inclusive input/output monitoring of outgoing messages with specified TN	nxcc-22
ENL AML x	Enable AML x. For MSDL: If AUTO recovery is off, then this command is the same as the ENL AML x LYR2 command. If AUTO recovery is on, an attempt is made to establish the link (layer two) and the application (layer seven). For ESDI: This is the same as the ENL AML x LYR2 command.	esdi/ msdl-18
ENL AML x ACMS	Enable automatic set-up on AML x (ESDI only). This command is valid only for ESDI AML and is not available on the MSDL AML.	esdi-18

ENL AML x AUTO	Enable AUTO recovery on AML x (MSDL only). This command is not available for ESDI AML links.	msdl-18
ENL AML x FDL	Force download loadware to the MSDL card and enable AML x. MSDL Requirement: The MSDL card must be enabled. The AML link state must be in the disable state. All other MSDL AML links configured on the same MSDL card must be in the disable state. Example: ENL MSDL x must have been executed at an earlier time. MSDL Action: The MSDL AML loadware is downloaded to the MSDL card. While download is in progress a series of dots are output. Once the command is executed successfully the ENL AML x LYR2 command is executed automatically.	msdl-18
ENL AML x LYR2	Enable layer two on AML x. MSDL Requirement: The MSDL card must be enabled. The AML link state must be in the disable state. Example: ENL MSDL x must have been executed at an earlier time. MSDL Action: The AML link state is changed to the release state. The MSDL port on which the AML is configured is enabled. If the ENL AML x command is executed successfully, and MSDL AML auto recovery is in the enable state, then the EST AML x is issued automatically. ESDI: The ESDI port is enabled. The ESDI card must first be disabled.	msdl-18
ENL AML x LYR7	Enable layer seven on AML x. MSDL Requirement: The MSDL card must be enabled. The AML link should not be in the simulation mode. The AML layer two must be enabled and established, and AML layer seven must be disabled. Example: ENL MSDL x followed by ENL AML x LYR2 followed by EST AML x must have been executed at an earlier time. MSDL Action: A request to enable the AML layer seven is issued. Polling messages are sent to the far end. ESDI: Layer seven is enabled for the ESDI AML. The ENL AML x (LYR2) command must be completed successfully first.	msdl-18

ENL AML x MDL	Enable MDL error reporting on AML x (MSDL only). MSDL Requirement: The MSDL card must be enabled. The AML layer two must be enabled. Example: ENL MSDL x followed by ENL AML x LYR2 must have been executed at an earlier time. MSDL Action: The MSDL AML loadware command to enable the MDL error reporting is sent to the MSDL card. This command is not available for ESDI AML links.	msdl-18
ENL AML x MON	Enable monitor on AML x (MSDL only). MSDL Requirement: The MSDL card must be enabled. The AML layer two must be enabled. Example: ENL MSDL x followed by ENL AML x LYR2 must have been executed at an earlier time. MSDL Action: The MSDL AML loadware command to enable the debug monitor is sent to the MSDL card This command is not available for ESDI AML links.	msdl-18
ENL APL x	Put software AUX link x in non-maintenance mode.	apl-1
ENL ELAN	Enable ELAN server task When the application establishes connection to a Meridian 1 via this ELAN, a client process will be spawned for this application. The APP_IP_ID (Port ID and IP address) of each connection will be passed into the Meridian 1.	nxcc-22
ENL HSL	Enable the high-speed link. When enabling a high-speed link, the craftsperson must log out of the TTY to receive a message from the switch which confirms that the high-speed link (HSL) has been enabled.	lnk-2
ENL IALM <vsid>	Enable the integrated alarms application on the specified VAS. A VAS011 message is printed if the application is successfully enabled and a VAS012 if it is not.	ialm-21
ENL ICP x	Enable ICP link x.	icp-5
ENL ISDI x	Enable AUX link SDI x.	apl-1

ENL MON	Print software information at maintenance TTY. This command causes software information being sent to the auxiliary processor to be printed at the TTY. This information would include counts of Cumulative Negative Acknowledgments (NAKs), time-outs and many other control characteristics of the link. Use this command only when the ACD is handling light traffic. Otherwise, the TTY will be overloaded from the high volume of messages.	apl-1
ENL MSDL n	Enable the given MSDL card.	basic-25
ENL MSDL n all	Enable MSDL card n and all configured ports.	basic-25
ENL MSDL x (FDL, ALL)	Enable MSDL card. When entered without any of the optional parameters, the enable MSDL command attempts to enable the MSDL card. Enabling the card via this command is only permitted if the card is currently in the Manually Disabled (MAN DSBL) state. The enable card succeeds if: 1. the card is resident in the shelf 2. it has passed all the self-tests 3. the MSDL base software has been downloaded and is responding If the MSDL base software and any configured application software has not been downloaded, or if the version of the software on the card is different from the version on the system disk, software download occurs. While download is in progress, a series of dots (".") are output. If the FDL (forced download) option is entered, the MSDL base software and all the configured applications will be downloaded regardless if the application already exists on the card. Following the download, the card will be enabled. If the ALL option is entered, the card will be enabled (provided the three conditions mentioned above are met), all the applications will be downloaded if necessary and then an attempt will be made to enable all the links/ports configured on the card.	msdl-18

	Additionally, the enable command with the ALL option can be entered when the card is already in the enabled state. This allows you to enable any disabled links/ports through one command. It is not possible to use both the ALL and the FDL options in the same command.	
ENL MSDL n AUDM	Enable the msdl auditing for the MSDL card.	basic-25
ENL MSDL n DBG	Enable the debugger option for the MSDL card.	basic-25
ENL MSDL n FCTL	Enable flow control for the MSDL card.	basic-25
ENL MSDL n FDL	Force download all the required Loadware to the MSDL card and enable the MSDL card.	basic-25
ENL MSDL n MSGO	Enable the outgoing message monitor option for the MSDL card.	basic-25
ENL MSDL n MSGI	Enable the incoming message monitor option for the MSDL card.	basic-25
ENL MSGI x	Print incoming messages from link x. Enable output of incoming layer seven messages on AML x. This command allows printing of all incoming message received over link x on the maintenance output device. The SSD signaling messages and the program input are not printed. This is typically used to check the validity of incoming messages for the different queues.	csl-8
ENL MSGO x	Print outgoing messages from link x. Enable output of outgoing layer seven messages on AML x. This command allows printing for all outgoing messages over link x on the maintenance output device. This is typically used to check the validity of outgoing messages sent from the application layer to the output queue.	csl-8

ENL PACI x	Print incoming ESDI messages from link x. Enable output of incoming layer two messages on AML x. When enabled, all incoming messages received on link x to the ESDI are printed on the maintenance TTY, including SSD signaling messages. Typically this is used to check the correctness of the incoming messages as received from the ESDI in the data block format.	csl-8
ENL PACO x	Print outgoing ESDI messages from link x. Enable output of incoming layer two messages on AML x. When enabled, all outgoing messages are sent through link x to the ESDI and are printed on the maintenance TTY. The message will be printed in the data block format required by the ESDI.	csl-8
ENL PPRT x	Enable packet message print option on link x. Printouts can be up to 7 lines in length and are of the form: • `APLO xxx y xxx. . .  x` • `APLI xxx y xxx. . .  x` Where: • `APLO` = the message is output from the Meridian 1 • `APLI` = the message is input to Meridian 1 from AUX • `xxx` = number of the APL link. • `y` = number from 0 to 6 indicating the printout line number of the message. This field is not used for ACK and NAK messages.	apl-1
ENL PRNT	Connect high-speed link to TTY. Disconnects the high-speed link from the AUX and connects it instead to an RS-232-C compatible TTY device. This disrupts communication between the Meridian 1 and the auxiliary processor. It enables ACD related messages (which would normally be sent to the auxiliary processor) to be printed at the TTY connected to the high-speed link. Normal communications between the Meridian 1 and the auxiliary processor will not continue if the ENL PRNT command is inputted while the Meridian 1 and auxiliary processor are still connected. A different message format is used between the Meridian 1 and the auxiliary processor. This condition will cause the HSL to go down because the auxiliary processor cannot interpret this other message format.	apl-1

ENL SDI HIGH	Enable SDI port for high-speed link. When enabling a high-speed link, the craftsperson must log out of the TTY to receive a message from the switch which confirms that the high-speed link (HSL) has been enabled.	lnk-2
ENL SDI LOW	Enable SDI port for low-speed link.	lnk-2
ENL STA x (FDL)	Enable STA application. The MSDL card must be enabled to implement this command, where: • x = the logical ID number identifying the STA application. • FDL = force download the application. If not invoked, the application is downloaded only when needed	sta-19
ENL UPRT x	Enable unpacked message print on link x. Printouts are of the form: `APLMxxx aa b c zzzz. . . z` Where: • `APLMxxx` = indicates unpacked message over link xxx • `aa` = indicates the message length • `b` = indicates the application type • `c` = indicates the message type • `zzz` = these fields are the message body, depending on the application and message type	apl-1
ENL VMBA <vsid>	Enable the Voice Mailbox Administration application. Enter the command in the following format: ENL VMBA <vsid> <NNNN> ALL/xxxx Where: • vsid = The VAS ID number associated with VMBA. • NNNN = AUDT or UPLD for the mailbox database audit or upload functions. • ALL/xxxx = Enable NNNN for ALLDNs with Voice Mailboxes, or a specific DN (xxxx). NNNN and ALL/xxxx are optional entries. The VAS ID must be entered to initiate this command.	vmba-19
ENL VMBA <vsid> AUDT	Enable the mailbox database audit. Enter the command in the following format: ENL VMBA <vsid> AUDT ALL/xxxx	vmba-19

The audit can be implemented for a specific Directory. Number by entering the DN following the audit command:

- ENL VMBA <vsid> AUDT xxxx

The upload can also be enabled for all DNs eligible for a Voice Mailbox by entering ALL following the audit command:

- ENL VMBA <vsid> AUDT ALL

ENL VMBA <vsid> UPLD — vmba-19

Enable the mailbox database upload. Enter the command in the following format:

- ENL VMBA <vsid> UPLD ALL/xxxx

The upload can be implemented for a specific Directory Number by entering the DN following the upload command:

- ENL VMBA <vsid> UPLD xxxx

The audit can also be enabled for all DNs configured with Voice Mailboxes by entering ALL following the upload command:

- ENL VMBA <vsid> UPLD ALL

ENLX MSGI x p — Output incoming priority p messages from link x. — apl-1

When enabled by the user, all incoming messages received on link x are output, excluding the messages with specified priorities, where “p” is the message priority, and where:

- 1 = the system priority
- 2 = signaling priority
- 3 = call processing priority
- 4 = administration priority

ENLX MSGO x p — Output outgoing priority p messages from link x. — apl-1

When enabled by the user, all outgoing messages sent through link x are output, excluding the messages with specified priorities, where “p” is the message priority, and where:

- 1 = the system priority
- 2 = signaling priority
- 3 = call processing priority
- 4 = administration priority.

EST AML x	Establish layer two on AML x. The layer two is established for the AML configured on the given MSDL port. The layer two is connected for the AML configured on the ESDI card. MSDL Requirement: The MSDL card must be enabled. The AML layer two must be enabled and released. Example: ENL MSDL x followed by ENL AML x LYR2 must have been executed at an earlier time. MSDL Action: The MSDL AML link state is changed into the established state. If EST AML x executes successfully, and provided that the MSDL AML AUTO recovery is enabled, next the ENL AML x LYR7 is executed automatically. ESDI: Layer two is connected for the ESDI AML. The port must be enabled first.	msdl-18
ENXM MSGI <link#><msg1><msg2>...	Enable message input/output monitoring excluding those specified incoming messages	nxcc-22
ENXM MSGO <link#><msg1><msg2>...	Enable message input/output monitoring excluding those specified outgoing messages	nxcc-22
ENXP MSGI <link#><pri><pri>...	Enable input/output incoming message monitoring excluding messages with specified priorities	nxcc-22
ENXP MSGO <link#><pri><pri>...	Enable input/output outgoing message monitoring excluding messages with specified priorities	nxcc-22
ENXT MSGI <link#><l><s><c><u>	Enable input/output message monitoring excluding incoming messages with specified TN	nxcc-22
ENXT MSGO <link#><l><s><c><u>	Enable input/output message monitoring excluding outgoing messages with specified TN	nxcc-22
FLSH	Disable monitor and flash buffers	nxcc-22

ICP ADD xxxx	Set up additional information xxxx to be used in the ICP message. Enter the time (hhmm) and date (mmdd).	icp-5
ICP CLR	Clear previous ICP message set up without sending it.	icp-5
ICP DN xxxx	Set up ICP DN xxxx to be used in the ICP message.	icp-5
ICP IPN xx	Set up IPN number xx to be used in the ICP message.	icp-5
ICP LINK xx	Set up ICP link xx to be used in the ICP message.	icp-5
ICP RSN x	Set up the intercept transfer reason x to be used in the ICP message.	icp-5
ICP SEND xx yy	Send the defined ICP message number xx, yy times. Where: • xx = number/type of ICP message (50-61 to the ICP link, 00-03 to the ICP module) • yy = number of times message is to be sent per time-slice (default = 1, maximum = 4) The message is only cleared by entering the ICP CLR command or by changing the contents of the message.	icp-5
ICPM	Access ICP maintenance commands. Enter this command and the password (prompt PSWD) to use Intercept Computer Update (ICP) maintenance commands.	icp-5
MAP AML (x)	Get physical address and card name of one or all AMLs. This command outputs the card name and physical card address and ports for one or all AMLs. This information is also output with the STAT AML command. For example: • `MAP AML` • `AML: 05  ESDI: 04` • `AML: 12  MSDL:07  PORT:1`	msdl-18
MAP STA x	Get information relating to the STA application. This command displays the logical, physical, and port allocation information related to the STA application. If the ID number (x) is not specified, the information for all existing STAs is given.	sta-19

PSWD	Enter password to use ICP maintenance commands.	icp-5
RLS AML x	Release layer two on AML x. The layer two is released for the AML link configured on the given MSDL port. The layer two is disconnected for the AML configured on the ESDI card. MSDL Requirement: The MSDL card must be enabled. The AML layer two must be enabled and established. Example: ENL MSDL x followed by ENL AML x LYR2 followed by EST AML x must have been executed at an earlier time. MSDL Action: Prior to the execution of the RLS AML x, if the MSDL AML layer seven is enabled, the DIS AML x LYR7 is automatically executed. The MSDL AML state is changed to the release state. ESDI: The layer two is disconnected for the ESDI AML port. The port must be in the connected and idle state first.	msdl-18
RSET ALL	Stop printing all messages on a line card.	arie/ bri-14
RSET BRIM	Stop printing of messages on SILC/UILC, MISP or digital line card.	bri/ arie-18
RSET IFx 1 PDL2 1	Stop printing SAPI 16 interface messages.	mph-19
RSET IFx 1 PDNI n	Stop printing network interface messages.	mph-19
RSET IFx l s c u BCH x	Stop printing B-channel terminal interface messages.	mph-19
RSET IFx l s c u DCHx	Stop printing D-channel terminal interface messages.	mph-19
RSET IMSG l s c dsl	Disable monitoring on incoming	
RSET MISP x AMO	Stop printing of audit messages on MISP specified. Where: x = loop for non-Option 11C and card for Option 11C.	bri-18

RSET MISP x DGB		bri-18
	Exit MISP debug. Where: x = loop for non-Option 11C and card for Option 11C.	
	Where: x = loop 0-254 Option 81C with Fiber Network Fabric	fnf-25
RSET MISP loop MNT		bri-18
	Stop printing of status messages on MISP specified. Where: x = loop for non-Option 11C and card for Option 11C.	
	Where: x = loop 0-254 Option 81C with Fiber Network Fabric	fnf-25
RSET MISP x MON		bri-18
	Stop printing of input/output messages on MISP specified. Where: x = loop for non-Option 11C and card for Option 11C.	
	Where: x = loop 0-254 Option 81C with Fiber Network Fabric	fnf-25
RSET MPHM	Stop all Meridian Packet Handler message monitoring.	mph-19
RST MSDL n	This command causes a power-on reset on the MSDL card.	basic-25
RSET OMSG l s c dsl		
	Disable monitoring on outgoing	
RSET TNx	Stop printing messages on an ISDN BRI line card. Where: x = 0-6 (TN0-TN6).	bri-18
RST MSDL x	Reset MSDL card.	msdl-18
	This command causes a power-on reset on the MSDL, followed by a series of short self-tests. Resetting the card via this command is only permitted if the card is in the Manually Disabled (MAN DSBL) state.	
SET IMSG l s c dsl MON x		
	Set monitor on incoming msg	
SET OMSG l s c dsl MON x		
	Set monitor on outgoing msg	

SETM BRIM xxxx bri-18

Set printing of messages on SILC/UILC, MISP, or digital line card.

This command is used to select various message types for printing on a given TN (defined by SETM TNx commands). The value of xxxx is a HEX word which determines the message types.

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
				X						X	X	X	X	X	X

Bit 0 = Input SSD message from BRI line cards.
Bit 1 = Output SSD message to BRI line cards.
Bit 2 = Input expedited (high priority) message from BRIL application on MISP.
Bit 3 = Output expedited (high priority) message from BRIL application on MISP.
Bit 4 = Input ring message from BRIL application on MISP.
Bit 5 = Output ring message from BRIL application on MISP
Bit 11 = Call processing error message.

All other Bits are for future use. Note that the SETM TNx command must have been issued before issuing this command.

Examples:

To print input SSD and expedited messages:

- SETM BRIM 0005 (i.e., 0000000000000101)

To print input and output expedited messages:

- SETM BRIM 000C (i.e., 0000000000001100)

SETM IFx 1 PDL2 1 mph-19

Set printing of SAPI 16 interface messages.

SETM IFx 1 PDNI n mph-19

Set printing of network interface messages.

SETM IFx l s c u BCHx mph-19

Set printing of B-channel terminal interface messages.

SETM IFx l s c u DCHx mph-19

Set printing of D-channel terminal interface messages.

SETM MISP x AMO bri-18

Set printing of audit messages on MISP specified.

Where: x = loop for non-Option 11C and card for Option 11C.

These messages are sent from the MISP handler to the MISP basecode. This command is used to turn these messages back on once they have been turned off because:

- debug or monitor (MON) mode is enabled
- RSET x AMO command has been issued

Where: x = loop 0-254 Option 81C with Fiber Network Fabric fnf-25

SETM MISP x DBG bri-18

Set debug option on MISP specified. Where: x = loop for non-Option 11C and card for Option 11C.

The card must be disabled first. The debug option has the following effect when the MISP is enabled:

- turns off the sanity timer
- stops interface handler audit messages
- no timestamp messages are sent to the MISP card

This command requires a password. The “dot” prompt indicates debug mode is turned on.

SETM MISP x MNT bri-18

Set printing of status messages on MISP specified.
Where: x = loop for non-Option 11C and card for Option 11C.

These messages indicate:

- error indication messages from the MISP
- state of L1 on SILC/UILC and L2/L3 on MISP

This option setting is lost during an initialization.

SETM MISP x MON bri-18

Set printing of input/output messages on MISP card. Where: x = loop for non-Option 11C and card for Option 11C.

Both the expedited and ring input/output messages are printed. This command also sets the debug option and requires a password.

This command turns on all input/output messages. This may use up all system print registers and may cause system initialization. Therefore use this command with caution.

The debug option is turned off by a system initialization. Restarting debug will also restart the input/output monitoring.

DISABLE MISP prior to issuing this command, re-enable MISP after command issued.

SETM MPHM xxxx mph-19

Set printing of Meridian Packet Handler messages. Where: xxxx = the MPHs to be monitored

SETM TNx l s c u, 31 arie/ bri-14

Set printing messages on a digital line card unit (u) or ISDN BRI line card (31). This command is used in conjunction with the SETM BRIM command.

The value x is a tag number (0-6). For ISDN BRI line cards, you must enter "l s c 31" for the address.

SETM TNx l s c u, dsl arie/ bri-14

Set printing messages on a unit. This command is used in conjunction with the SETM BRIM command. The value x is a tag number (0-6).

SETM TNx y Set printing messages on a digital line card unit or ISDN BRI line card. Where: bri-18

x = tag number 0-6 (TN0-TN6)

y = l s c u (loop, shelf, card, and unit) or l s c dsl (loop, shelf, card, and digital subscriber loop) for non-Option 11C systems and c u (card, and unit) or c dsl (card, and digital subscriber loop) for Option 11C systems.

If u = 31 when a S/T (SILC) or U (UILC) Interface Line Card is specified for the y parameter, then messages for that line card are printed. This command must be issued before the SET BRIM command.

SLFT AML x	Self-test on AML x. This command runs the local loop back test for MSDL AML, and the ESDI self-test for the ESDI AML. MSDL Requirement: The MSDL card must be enabled. The AML layer two must be disabled. Example: ENL MSDL x must have been executed at an earlier time. MSDL Action: The MSDL AML local loop back test is executed and upon completion of the test the MSDL AML port is set to the disable state.	msdl-18
SLFT MSDL x	Execute a self-test on MSDL card x. This command causes a power-on reset on the MSDL, which ill be followed by a complete set of self-tests. This command only executes self-tests if the card is in the Manually Disabled (MAN DSBL) state. If the self-tests pass, a message indicating this and card id is output. If the self-tests fail, a message is output describing which self-test failed. It is useful to note that the first test that fails will abort the self-test sequence, so this command only indicates one test failure, even if multiple tests might fail.	msdl-18

STAT AML (x)	Get AML status.
	
	This command outputs the status of layer two and layer seven of one or all configured AMLs. The designation (DES) of the AML is output if it has been defined for the port in LD 17.
	
	Examples:
	
	`AML: 01 MSDL: 08 PORT: 00`
	`LYR2: DSBL AUTO: OFF LYR7: DOWN`
	`DES: MERIDIAN_MAIL`
	`AML: 04 ESDI: 10`
	`LYR2: EST AUTO: ON LYR7: ACTIVE`
		msdl-18

STAT APL x	Display status of AUX link x.	apl-1

STAT CNFG	Get status of link monitor/simulator configuration. Display link monitor/simulator configuration status. The system will respond according to the current configuration as follows: • *NOT CONFG - if system is not configured • *CNFG INT/SIM CSLAPL x CSLSIM x if the system is in internal maintenance mode; shows link numbers of CSLSIM and CSL application program • *CNFG FLD CSL x if the system is in field maintenance mode; shows CSL link number	csl-8
STAT CSDI x	Get status of SDI port x.	basic-1
STAT DSP LNK x	Get status of all Displays on link x.	apl-1
STAT ELAN	Check status of all configured AML over Ethernet (ELAN) links	nxcc-22
STAT ELAN x	Check status of specific AML over Ethernet (ELAN) link x	nxcc-22
STAT HSL	Get high-speed link status. Response can be either: 1. UP 2. DOWN, or 3. NOT READY	lnk-2
STAT IALM <vsid>	Print the status of the integrated alarms application on the specified VAS, where: • ACTIVE = active IALM application • INACTIVE = inactive IALM application • MANDIS = manually disabled IALM application (disabled in LD 48) • LINKOOS = inactive IALM application (because link to the AP is out of service)	ialm-21
STAT ICP (x)	Display software status of one or all ICP links.	icp-5

STAT ISDI x — Get status of hardware AUX link SDI x. apl-1

STAT MON (x) — Get status of one or all message monitors. csl-8

The system will respond with the status. If all monitors are disabled, the response is:

```
MSGO DIS
MSGI DIS
PACO DIS
PACI DIS
X25I DIS
X25O DIS
```

If the monitor function is enabled, for outgoing messages on two links, the response is: `MSGO ENL CSL x`

STAT MSDL (x (FULL)) msdl-18

Get MSDL status.

This command outputs the status of MSDL cards. Without any optional parameters (no card number, etc.), the status of all MSDL cards in the system is output.

When a card number alone is provided with the command, the status of the card is output along with additional information regarding the applications configured on the card.

Specifically, for each D-channel or AML configured on the card, the application name, logical number and port status is output.

For example:

```
MSDL x: ENL
AML 11 DIS    PORT 1
DCH 25 OPER PORT 2
AML 03 OPER PORT 3
```

The status output will include the overloaded state of the individual ports. The benefit, individual ports with a high incoming message rate will be locked-out, operation of the other ports will be unaffected. msdl-24

For example:

```
MSDL x: ENL
SDI 7 OVLD PORT 0
AML 11 DIS    PORT 1
DCH 25 OPER PORT 2
AML 03 OPER PORT 3
```

If the FULL option is entered along with the MSDL number, the Meridian 1 outputs all the information output for the 'STAT MSDL x' command along with the following additional information:

- card ID
- bootload firmware version
- basecode version
- basecode state
- when the basecode was activated (if it is active)
- each application version
- each application state
- when each the application was activated (if it is active)

The card status is output on the first line and can be any one of the following:

`MSDL x: ENBL` - card is enabled

`MSDL x: MAN DSBL` - card disabled by the DIS MSDL command

`MSDL x: SYS DSBL reason` - card has been disabled by the system

The system disabled state may be due to any of the following:

1. `SYS DSBL- NOT RESPONDING`
   - If the MSDL is in this state, the implication is that the Meridian 1 has attempted to communicate with the MSDL and was not successful. It is possible that the card is not present in the shelf. If it is present, then it is possible that the software on the card is unable to respond to messages from the Meridian 1.

- **Action**: Check to see if the card is properly inserted in its slot. If it is (and has been for more than a few minutes), then check the console output for MSDL or ERR messages and take the appropriate action for the error message.

- It may be that the rotary switch setting on the MSDL card is not set properly. To keep the Meridian 1 from continuously attempting recovery of the MSDL, use the 'DIS MSDL x' command to put the card in the Manually Disabled (MAN DSBL) state.

2. SYS DSBL- SELF-TESTING

- If the MSDL is in this state, self-tests are in progress.

- **Action**: Wait for self-tests to complete and for the Meridian 1 to examine the results. Under normal circumstances, self-tests take less than one minute to complete. However, when an erasable EPROM on the card has been cleared, self-tests may take between five and six minutes to complete. Therefore, it is prudent not to take any action at this time.

3. SYS DSBL- SELF-TESTS PASSED

- This is a transient state. A card in a transient state has successfully completed self-tests and the Meridian 1 either is about to begin downloading the MSDL base software, or has just completed downloading the MSDL base software and is about to attempt to enable the card.

- **Action**: Wait for the Meridian 1 to begin the next step of recovery. If a more immediate recovery is desired, use the 'DIS MSDL x' command followed by the 'ENL MSDL x' command. This causes essentially the same recovery action to be taken. However, it may be faster (since it is being done as a result of input from the craftsperson).
-

4. SYS DSBL- SELF-TESTS FAILED

- If the MSDL is in this state, self-tests have executed and failed on this card.

- **Action**: Use the 'STAT MSDL x' command to determine reason for self-test failure. Disable the MSDL card using the 'DIS MSDL x' command, then use the 'SLFT MSDL x' command to execute the self-tests again.
- If the self-tests pass, attempt to enable the card using the 'ENL MSDL x' command. If the card fails the self-tests again, record the results and replace the card.

5. SYS DSBL- SRAM TESTS FAILED

- If the MSDL is in this state, self-tests have executed and passed, however when the Meridian 1 attempted to perform read/write tests to the shared RAM on the MSDL, it detected a failure.

- **Action**: Same as for self-test failure. If the attempt to enable the card fails, record the results and replace the card.

6. SYS DSBL- OVERLOAD

- The Meridian 1 has received too many messages from the MSDL. This is considered to be unacceptable, in that this much of a demand may interfere with other system functions.

- **Action**: If the MSDL is left in this state, the Meridian 1 will attempt to bring the card back into service within a few minutes. If this is not desired, disable the card using the 'DIS MSDL x' command.
-
- It is also advisable to identify a specific port or application that may be responsible for the overload. The identification can be made by disabling individual links/ports on the MSDL and letting the remaining links/ports operate normally.

7. SYS DSBL- RESET THRESHOLD

- If the MSDL is in this state, the Meridian 1 has detected more than four resets within ten minutes. This is considered to be unacceptable, as a normally operating card should not reset so often.

- It is possible that the card may be in this state due to a Fatal Error or Self-test failure from which no recovery was successful. (As the recovery from Fatal Errors and Self-test failures begins with resetting the card, repeated attempts at recovery may cause the reset threshold to be reached.)

- **Action**: Disable the card using the 'DIS MSDL x' command and execute the 'SLFT MSDL x' command. If self-tests pass, attempt to enable the card using the 'ENL MSDL x' command. If the problem recurs, try force downloading the software to the MSDL using the 'ENL MSDL x FDL' command.

- If the problem continues to recur and resets continue because of a repeated fatal error, attempt to isolate the problem by disabling all links/ports controlled by one application (e.g., all D-channels or all AMLs). If no manual intervention is taken by the craftsperson, the Meridian 1 will attempt to bring the card back into service beginning at midnight.

8. SYS DSBL- FATAL ERROR

- If the MSDL is in this state, the card encountered a fatal condition from which it could not recover. In response to the 'STAT' command, the cause of the fatal error will be displayed.

- If the 'STAT' command is not entered while the card is in this state, the MSDL302 message printed at the time of the state transition will indicate the cause of the fatal error.

- **Action**: The Meridian 1 will attempt to bring the card back into service automatically. While the card is in this state, it is recommended that the craftsperson do nothing. If the Meridian 1 is unable to recover the card, the system disabled substate will be changed to indicate the reason recovery was not possible. The craftsperson should then take the recommended action for that new substate.

9. SYS DSBL- NO RECOVERY ATTEMPTED UNTIL MIDNIGHT

- When this is output after the SYS DSBL message, the Meridian 1 has attempted to recover the card but has repeatedly failed. One example of this condition is when the background recovery mechanism has failed to download the MSDL Base Code five times in a row.

- **Action**: Disable the card using the 'DIS MSDL x' command, test the card using the 'SLFT MSDL x' command, and if self-tests pass, enable the card using the 'ENL MSDL x' command.

- If downloading of the MSDL Base Code is necessary, it will be attempted in response to the enable command. If no manual intervention is taken, the Meridian 1 will again attempt recovery beginning at midnight.

STAT SDI HIGH	Get status of high-speed link port. The response can be either ENL (enabled) or DIS (disabled).	lnk-2
STAT SDI LOW	Get status of low-speed link port. The response can be either ENL (enabled) or DIS (disabled).	lnk-2
STAT STA x	Get status of STA application. When x (STA ID number) is specified, the STA state, port number, port type, port state, and system description are displayed. If x is not specified, and the application is enabled, the state and port information is given. If x is not specified, and the application is in any state other than enabled, only the STA status is given. No port or system information is displayed. .	sta-19

Possible output follows:

1. Application state and Target state:
   ENABLED, MANUAL DISABLE, SYSTEM DISABLE, AWAIT DISABLE, AWAIT APPL ENABLE, AWT CONF DOWNLOAD
2. Port type: ADM, SYS, TTY
3. Port state:
   NO SDI/STA, DISABLED, ENABLED, TESTING, KEYBOARD TST, AWAIT VT-200, DTR DOWN, AUTOBAUDING, AWT AUTOBAUD, ABD SCANNING, DEFAULT ABD, NO MODEM, IN SESSION, AWAIT ENABLE

System description is entered as part of the port configuration. For the additional port used to shadow the STA application, the system description is SHADOW TTY.

STAT VMBA <vsid> vmba-19

Get the status for the Voice Mailbox Administration application. Enter the command in the following format:

STAT VMBA <vsid> <NNNN>

Where:

- vsid = the VAS ID where the VMBA is configured
- NNNN = VMBA audit or upload function. You may enter either AUDT or UPLD, where:
- AUDT = mailbox database audit, or
- UPLD = mailbox database upload

AUDT and UPLD are optional entries. The VAS ID must be entered. The status output is shown below:

STAT VMBA <vsid>

- VMBA <ACTIVE or INACTIVE>
- AUDIT <ACTIVE or INACTIVE>
- UPLOAD <ACTIVE or INACTIVE>

STAT VMBA <vsid> AUDT

- AUDIT INACTIVE, or AUDIT ACTIVE

Where:

- n AUDITED
- n MISMATCHES FOUND/CORRECTED
- n ERRORS

STAT VMBA <vsid> UPLD

- UPLOAD INACTIVE, or UPLOAD ACTIVE

Where:

- n UPLOADED
- n DELETED
- n ERRORS

STAT VMBA <vsid> AUDT — vmba-19

Get the status for the Voice Mailbox Database audit. Enter the command in the following format.

STAT VMBA <vsid> AUDT
The status output is shown below:

STAT VMBA <vsid> AUDT

- AUDIT INACTIVE, or AUDIT ACTIVE

Where:

- n AUDITED
- n MISMATCHES FOUND/CORRECTED
- n ERRORS

STAT VMBA <vsid> UPLD — vmba-19

Get the status for the Voice Mailbox Database upload. Enter the command in the following format.

STAT VMBA <vsid> UPLD

The status output is shown below:

STAT VMBA <vsid> UPLD

UPLOAD INACTIVE,or UPLOAD ACTIVE

Where:

- n UPLOADED
- n DELETED
- n ERRORS

SWCH AML x y — Switch active (x) and standby (y) AML. This is AML switchover, where x is the active AML switching to standby and y is the standby AML to become active. — msdl-18

UPLD AML x TBL y msdl-18

Upload parameter table 1 to 4 from AML x (MSDL only).

The MSDL AML maintenance error log table, is uploaded from the MSDL card and is displayed on the TTY screen.

The parameter tables are:

- TBL1 = AML maintenance error log table
- TBL2 = AML downloaded parameter table
- TBL3 = AML protocol error log table
- TBL4 = AML traffic table

MSDL Requirement: The MSDL card must be enabled. The AML layer two must be enabled.

Example: ENL MSDL x followed by ENL AML x LYR2 must have been executed at an earlier time.

Action: MSDL AML table is uploaded and is displayed on the TTY screen.

This command is not available for the ESDI card.

LD 51: Intercept Computer Update

This program updates the Meridian 1 with the intercept service interface information that is stored. The program can be run manually or run in the midnight routine for all customers.

Basic commands

CUST ALL	Update all customers.
CUST c ...c	Update 1 to 5 customers (0-99).
END	Terminate the program.
UPD	Update the transfer information.

Alphabetical list of commands

Command	Description	Pack/Rel
CUST ALL	Update all customers.	icp-5
CUST c ...c	Update 1 to 5 customers (0-99). Repeat the command if more than 5 customers are to be updated.	icp-5
END	Terminate the program.	icp-5
UPD	Update the transfer information.	icp-5

LD 53: 2.0 Mb/s Remote Peripheral Equipment Diagnostic

Load 53 is used to maintain 2.0 Mb/s Remote Peripheral Equipment.

Program 53 is not supported on Option 11 systems.

LD 53 Daily Routines

This program functions according to the type of loading. When loaded as part of the daily routines, the program:

- tests the connection memory of network circuits on idle loops
- tests the continuity of speech paths to the remote site
- unspares a loop if it passes the tests, is autospared, and the BGTH threshold is not zero
- resets alarm counters to zero
- performs loop around tests on local and remote ends of spare remote peripheral equipment (RPE) loops
- tests idle timeslots in network circuits
- tests continuity of the signaling paths

How to use LD 53

The 2.0 Mb/s Remote Peripheral Equipment Diagnostic (RPM) is loaded manually to:

- enable, disable, and check the status of network loops
- perform loop around tests on local and remote ends of an RPE loop
- clear minor alarms and the maintenance display
- print the counter values (alarm occurrences) for RPE loops
- test the idle timeslots in network circuits
- test the continuity of the speech path to the remote site
- reset the counter values to 0
- test local and remote RPE Controller (RPC) card
- switch spare loops into and out-of-service
- prints the status of RPE groups/loops and their path switch
- test continuity of signaling paths

Fiber Network Fabric

The Fiber Network Fabric extends and enhances the 5-group network architecture to 8 non-blocking (inter-group) Network groups, with a resulting expansion in network capacity to 8k timeslots available for Intergroup traffic. This is achieved by using OC-12 SONET rings, and adding additional network and PE shelves, cards and cables and software changes to allow using the expanded network capacity. This expansion increases the number of available loops from 160 to 256. This applies to the Option 81C only.

Basic commands

CDSP	Clear maintenance display on active CPU to 00 or blank
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indicator for customer c
DISI loop	Disable loop once it becomes idle
DISL loop	Disable loop
DISS l s	Disable shelf s on loop l
END	Terminate the active command
ENLL loop	Enable loop
ENLS l s	Enable shelf s on loop l
LBKL loop	Close local loop back relay
LBKR loop	Force remote loop back relay
LCNT ALL	List the alarm occurrence counter values for all loops
LCNT loop	Print alarm occurrence counter values on loop
LDIS	List disabled RPE loops in the system
LFLT loop	List speech timeslots that failed loop test
LOCL loop	Perform local loop around test on loop
LOOP loop	Test idle timeslots and speech path continuity on loop
LRPE	List the remote loops in the system
OLBL loop	Remove local loop back on loop
OLBR loop	Remove remote loop back on loop
RCNT ALL	Reset the alarm occurrence counter values for all loops
RCNT loop	Reset the alarm counters for loop
REML loop	Perform remote loop around test on loop
STAT	Get number of busy channels with DISI active
STAT loop	Get status of loop
STAT PSW g	Get status of path switch of RPE group g
STAT RPG g	Get status of RPE group g
SWSP loop	Spare loop
TRPL loop	Test both local and remote end of the RPE loop
TSTL loop	Test local RPE controller of loop
TSTR loop	Test remote RPE controller of loop
UNSP loop	Unspare loop

Alphabetical list of commands

Command	Description	Pack/Rel
CDSP	Clear maintenance display on active CPU to 00 or blank.	basic-1
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
CMIN c	Clear minor alarm indicator for customer c.	basic-1
DISI loop	Disable loop once it becomes idle. The number of channels still busy on the loop may be checked using the STAT command.	basic-1
DISL loop	Disable loop. Any calls on loop are disconnected.	basic-1
DISS l s	Disable shelf s on loop l	fnf-25
END	Terminate the active command. If no command is in progress, the active DISI command is cancelled.	basic-1
ENLL loop	Enable loop. If the operation is successful, OK is output. This command performs test only on the local equipment. A loop test should be performed to ensure the remote end is enabled.	basic-1
ENLS l s	Enable shelf s on loop l	fnf-25
LBKL loop	Close local loop back relay. The loop must be disabled before the command is given. The relay remains closed until OLBL command is entered. This command requires approximately 30 seconds to complete.	basic-1
LBKR loop	Force remote loop-relay. The loop must be disabled before the command is given. Similar to LBKL. The relay remains closed until the OLBR command is entered. This command requires approximately 30 seconds to complete.	basic-1
LCNT ALL	List the alarm occurrence counter values for all loops.	basic-6

LCNT loop	Print alarm occurrence counter values on specified loop. Alarm types are: 1. ALM1 = Customer defined alarm 1 2. ALM2 = Customer defined alarm 2 3. ALM3 = Customer defined alarm 3 4. BGTH = Unsparing attempts by background 5. CCLK = Loss of carrier clock at local site 6. FAEL = Frame alignment error rate exceeded at local site 7. FAER = Frame alignment error rate exceeded at remote site 8. LFAL = Loss of frame alignment at local site 9. LFAR = Loss of frame alignment at remote site 10. LIMG = Local incoming message buffer overflow (RPC) 11. LINT = Local RPC initialization problem 12. LOMG = Local outgoing message buffer overflow (RPC) 13. PCML = PCM error rate exceeded at the local site 14. PCMR = PCM error rate exceeded at remote site 15. PSWD = Path switch missing or disabled 16. PSWF = Path switch status failure 17. RPF = Remote RPC failure 18. SSDF = SSD failed on a line card	basic-1
LDIS	List disabled RPE loops in the system.	basic-1
LFLT loop	List speech timeslots that failed loop test. If no channels failed or no test has been performed, response is NONE.	basic-1
LOCL loop	Perform local loop around test on loop. The command tests the local equipment and continuity of loop. If all tests pass, response is OK. This command requires approximately 2.5 min to complete. If test fails, local loop back relay remains closed; enter OLBL to open the relay.	basic-1
LOOP loop	Test idle timeslots and speech path continuity. This command tests idle timeslots of connection memory or network loop and the continuity of speech path to remote site. Faulty units will be disabled. If all pass test, response is “OK”. This command does not test signaling to PE cards.	basic-1

LRPE	List the remote loops in the system.	basic-1
OLBL loop	Remove local loop back on loop.	basic-1
OLBR loop	Remove remote loop back on loop.	basic-1
RCNT ALL	Reset the alarm occurrence counter values for all loops.	basic-6
RCNT loop	Reset the alarm counters for loop.	basic-1
REML loop	Perform remote loop around test on loop. The command tests the local equipment and continuity of loop. If the test passes, response is OK. This command requires approximately 2.5 min to complete. If test fails, the remote Carrier Interface (CI) card remains in loop back mode. Use the OLBR command to disable loop back.	basic-1
STAT	Get number of busy channels with DISI active. If a DISI request is not active, an error message is output.	basic-1
STAT loop	Get status of loop. Responses are: 1. `x BUSY y DSBL` = number of busy/disabled speech channels on loop. 2. `x NWK MEM FLTS` = number of speech channels disabled due to fault in connection memory of card. 3. `CTYF: l1 l2 ln` = loop could not receive speech from specified loops during background diagnostic. 4. `DSBL`: = loop is disabled, responding or not responding (`REM/LOC LPBK`). `LOC/REM LPBK` indicates that local or remote loop back relay is closed.	basic-1
STAT PSW g	Get status of path switch of RPE group g. Responses are: 1. `x SPARED` = PSW for group g is in use, x is the spared loop 2. `IDLE` = no loop spared 3. `UNEQ/DSBL` = path switch is unequipped or disabled	basic-1

STAT RPG g	Get status of RPE group g. Responses are: 1. `x: DSBL THRS OVFL` = loop x has been disabled and a threshold level for the loop has been exceeded. 2. `x: DSBL, REM/LOC LPBK` = loop x is disabled and has been set up for REMote/LOCal loop back. 3. `x: ENBL/DSBL` = loop x is enabled/disabled 4. `x: SPRD–ENBL/DSBL` = loop x has been replaced with a spare and is enabled/disabled 5. `x: SPR IN USE, ENBL/DSBL` = loop x is the spare loop in use and is enabled/disabled 6. `x: AUTO SPARED AT: date hour–ENBL/DSBL` = loop x is auto spared at date and hour and is enabled/disabled 7. `PSW: IDLE/ENBL/DSBL` = state of the patch switch for the RPE group. 8. `PSW: SPRD–x` = patch switch for the RPE group is spared from loop x	basic-1
SWSP loop	Spare loop.	basic-1
TRPL loop	Test both local and remote end of the RPE loop. Loop must be disabled first. This command may require minutes to complete. Messages appear as the various tests progress.	basic-6
TSTL loop	Test local RPE controller of loop. Loop must be disabled prior to entering this command. Use DISI/DISL command to disable loop.	basic-1
TSTR loop	Test remote RPE controller of loop. Loop must be disabled prior to entering the command. Use DISI/DISL command to disable loop.	basic-1
UNSP loop	Unspare loop. The spare loop must be disabled before entering this command. Use DISI/DISL command to disable loop.	basic-6

LD 54: Multifrequency Signaling Diagnostic

Multifrequency Compelled Signaling (MFC) or Multifrequency Signaling (MFE) provides a handshaking facility between the Meridian 1 and the Central Office or Public Exchange (CO/PE) or between other PBXs over network/Tie trunks.

The XMFC card (for superloop and Option 11C only) can be used on MFC or MFE. XMFC card has four units.

The MFD overlay program is used to diagnose, display or change the status of the MFC or MFE send/receive (S/R) cards.

The program resets all available MFC or MFE cards (for channels on AXMFC card) and performs loop back tests during the midnight routines. After every SYSLOAD or power-up, all available MFC or MFE cards are initialized.

The program can be loaded by the system after every power-up (or SYSLOAD), as part of the daily routines, or loaded manually to enter commands.

Hardware Initialization after SYSLOAD

After system power-up, every idle MFC or MFE card is initialized (self-tested). During this test the card is disabled (LED on faceplate ON) and the S/R card microprocessor executes sequential loop back tests on both channels.

On power-up SYSLOAD on XMFC, card performs self-test, LED blinks 3 times to indicate self-test pass

- Cardlan polling message indicates that XMFC card has powered up.
- MSL-1 down loads the configuration (E0XXH)
- MSL-1 enables the card (C000H)
- Card performs self-test again. If self-test passes (8000H), then LED is OFF and card is enabled. If self-test fails (80XXH), LED is ON and card is disabled.

These tests entail looping the sender output of each card to the Receiver input. The sender transmits all thirty tone pairs (1 to 15 digits for both DOD/DID modes) with a default signal level of zero. Each time the receiver detects a tone pair, the microprocessor verifies the digit received. At the end of the test the microprocessor tries to send two test results (one for each channel) to the CPU.

The CPU cannot receive the results of the test because the card is disabled. A command to enable the card is issued and the microprocessor sends the test results to the CPU.

Loop around test during daily routines

This loop around test is conducted by the system during the midnight routines. The midnight test is identical to the test conducted after power-up except for the following points:

- the midnight test is conducted on one channel at a time for all available MFC or MFE cards
- the MFC or MFE S/R card remains enabled (LED on faceplate OFF)
- the midnight self-test can also be loaded manually by issuing a command on the specified channel

Loop around test by command

The loop around tests are performed by maintenance personnel on a specified channel of the MFC or MFE S/R card. There are two types of tests:

- one is identical to the midnight test which is conducted on the specific channel
- the second is conducted on a specific channel for a specified digit and signal level

LD 54 also performs the following functions:

- resets all idle MFC or MFE cards once a day during the midnight routines
- disables MFC or MFE card or channel. It enables MFC or MFE card or channel
- determines the status of MFC card or channel
- lists all disabled MFC or MFE channels
- handles other common overlay operations (such as clear alarms)

Note 1: Use the DISL command to force-disable the MFC or MFE channel or card.

Note 2: Use the DISI command in LD 32 to disable the card when idle.

Note 3: No more than 50% of MFC channels can be disabled at one time as a result of system or manually initiated tests. However, this constraint does not apply using disable commands.

MFC/MFE error handler and counter

The MFC/MFE error handlers are resident programs that monitor the number of MFC or MFE signaling errors. A one-word error field in the MFC or MFE block is initialized to zero. The Error Handler program allows a maximum of 10 errors. After every successful use of the MFC or MFE channel, the error field will decrement by one, if it is not already at zero. After every failure of the MFC or MFE channel the error field will increment by one.

In Generic software, the Error Handler program generates only the ERR700 L S C U message. When an Error Handler code is output, the MFD Overlay must be loaded manually and the MFC or MFE channels tested.

Fiber Network Fabric

The Fiber Network Fabric extends and enhances the 5-group network architecture to 8 non-blocking (inter-group) Network groups, with a resulting expansion in network capacity to 8k timeslots available for Intergroup traffic. This is achieved by using OC-12 SONET rings, and adding additional network and PE shelves, cards and cables and software changes to allow using the expanded network capacity. This expansion increases the number of available loops from 160 to 256. This applies to the Option 81C only.

Basic commands

ATST l s c u	Invoke automatic loop around test for specified unit
CDSP	Clear maintenance display to 00 or blank
CMAJ	Clear major alarm and reset power fail transfer
CMIN	Clear the minor lamp on a system basis
CMIN ALL	Clear minor alarm indication on all attendant consoles
DISC l s c	Disable specified MFC or MFE card
DISU l s c u	Disable specified MFC or MFE channel
END	Stop further testing or cancel active command
ENLC l s c	Enable specified MFC or MFE card
ENLU l s c u	Enable specified MFC or MFE channel
MIDN 0	Reset all idle MFC or MFE cards
MIDN 1	Initialize all idle MFC or MFE cards
MTST l s c u d l	Invoke manual loop around test on unit with specified digit and level
STAT	List all disabled MFC channels in the system
STAT l s c (u)	Get status of specified MFC or MFE card or unit

Option 11C commands

The following commands are applicable to Option 11C systems:

ATST c u	Invoke automatic loop around test for specified unit
DISC card	Disable specified XMFC/XMFE card
DISU c u	Disable specified XMFC/XMFE unit
ENLC card	Enable specified card
ENLU c u	Enable specified unit
MIDN 0	Reset all idle XMFC/XMFE cards
MIDN 1	Initialize all idle XMFC/XMFE cards
MTST c u d l	Invoke manual loop around test on unit with specified digit and level
STAT	List all disabled XMFC/XMFE channels in system
STAT card	List status of all units on card
STAT c u	List status specified TN

Alphabetical list of commands

Command	Description	Pack/Rel
ATST c u	Invoke automatic loop around test for specified unit. (Option 11C)	
ATST l s c u	Invoke automatic loop around test for specified unit. Performs automatic loop around test on specified unit with default signal level of zero. All 30 tone pairs are tested and verified by the card microprocessor. Digits 1 to 15 signify Forward Signals 1 to 15 (DOD mode) and digits 16 to 30 signify Backward Signals 1 to 15 (DID mode). The response is OK when the unit passes test and is enabled. If the receiver sends no message within a predefined time period, an error message indicating time-out is printed. If the receiver indicates it has received a different signal than that sent, the failed signal, an error message and the TN are printed.	basic-1
CDSP	Clear maintenance display to 00 or blank.	basic-1
CMAJ	Clear major alarm, reset power fail transfer and clear power fault alarm.	basic-1
CMIN	Clear the minor lamp on a system basis.	alrm_filter-22
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
DISC card	Disable specified XMFC/XMFE card (Option 11C)	
DISC l s c	Disable specified MFC or MFE card. LED on card is ON when disabled.	basic-1
DISU c u	Disable specified XMFC/XMFE unit (Option 11C)	
DISU l s c u	Disable specified MFC or MFE channel. When the other unit on the card is also in a disabled state in the software, a message is sent to disable the MFC or MFE card. LED on card is ON when disabled.	basic-1

END	Stop further testing or cancel active command.	basic-1
ENLC card	Enable specified XMFC/XMFE card (Option 11C)	
ENLC l s c	Enable specified MFC or MFE card. Response is OK. A message is sent to the MFC or MFE card to turn off the LED.	basic-1
ENLU c u	Enable specified XMFC/XMFE unit (Option 11C)	
ENLU l s c u	Enable specified MFC or MFE channel. Response is OK. A message is sent to the MFC or MFE card to turn off the LED.	basic-1
MIDN 0	Reset all idle MFC or MFE cards. Resets all idle MFC or MFE cards and performs loop around tests on all idle channels.	basic-1
MIDN 1	Initialize all idle MFC or MFE cards. Recommended after installation.	basic-1
MTST c u d l	Invoke manual loop around test on unit with specified digit and level. (Option 11C)	
MTST l s c u d l	Invoke manual loop around test on unit with specified digit and level. This command performs the manual loop around test on specified unit with specified digit and signal level. MFC-30 tone pairs are tested and verified by the Meridian 1 CPU. Digits 1 to 15 indicate forward signals 1 to 15 (DOD mode) and digits 16 to 30 indicate backward signals 1 to 15 (DID mode). MFE-15 tone pairs are tested and verified. Digits 1-15 represent Forward Signals 1-15 (DID mode). Digit 0 represents the control frequency. Table 19 on 334 presents MFC sender (transmit) levels. These levels are output by the MFC card and do not include any pads that may be put in by the trunk card.	basic-1

Table 19
MFC sender/transmit levels

Digit level	Level at S/R card	Digit level	Level at S/R card
0	8 dBm	8	4 dBm
1	11 dBm	9	5 dBm
2	12 dBm	10	6 dBm
3	13 dBm	11	7 dBm
4	14 dBm	12	9 dBm
5	15 dBm	13	10 dBm
6	16 dBm	14	spare (8) dBm
7	31 dBm	15	spare (8) dBm

The MFE signal level 0 = -10.5 dBm level with skew -7.0 dBm control frequency level. Signal levels 1-7 are used for internal test purposes.

The response is `OK` when the unit passes the test and is enabled. If the unit fails the test, the appropriate error message and the TN are printed.

STAT	List all disabled MFC channels in the system.	basic-1
STAT c u	Get status of specified MFC or MFE card or unit.	
STAT l s c (u)	Get status of specified MFC or MFE card or unit. Status is one of: `IDLE`, `BUSY`, `MBSY`, `DSBL` or `UNEQ` for both channels.	basic-1

LD 60: Digital Trunk Interface and Primary Rate Interface Diagnostic

The LD 60 diagnostic program can be run in midnight routines or loaded manually to enter commands.

On Option 11C Systems, LD 60 is used to maintain:

- NTAK20 Clock Controller
- NTAK09 1.5 Mb/s (DTI/PRI) Interface Card
- NTAK10 2.0 Mb/s (DTI) Interface Card
- NTAK79 2.0 Mb/s (PRI)

This program is used to maintain the following on other systems:

- QPC471/775 Clock Controller
- QPC472 1.5 Mb/s Digital Trunk Interface (DTI)
- QPC536 2.0 Mb/s Digital Trunk Interface (DTI2)
- QPC720 Primary Rate Interface (PRI)
- NT8D72AA 2.0 Mb/s Primary Rate Interface (PRI)

Channel Timeslot Mapping

If a system loop is configured with a SYS-12, AXE-10 SWE, NUMERIS, SwissNet D-channel (SWISS), TCNZ, or EuroISDN, then the following message to explain the difference in timeslot to channel mapping between the Meridian 1/Meridian SL-1 and the public network will be printed on loading the O verlay. The heading will differ according to the interface supported by the phase.

Example Message:

M 1/SL-1 — SYS-12
AXE-10 SWE
NUMERIS
SWISS
TCNZ
EuroISDN

Table 20: Channel Timeslot Mapping

Channel	M 1/SL-1	Network	Timeslot
B	1-15	1-15	1-15
B	16-30	17-31	17-31
D	31	16	16

Fiber Network Fabric

The Fiber Network Fabric extends and enhances the 5-group network architecture to 8 non-blocking (inter-group) Network groups, with a resulting expansion in network capacity to 8k timeslots available for Intergroup traffic. This is achieved by using OC-12 SONET rings, and adding additional network and PE shelves, cards and cables and software changes to allow using the expanded network capacity. This expansion increases the number of available loops from 160 to 256. This applies to the Option 81C only.

Basic Commands

DTI/PRI commands

ATLP (0), 1	Disable (default) or enable midnight auto loop test
CDSP	Clear maintenance display to 00 or blank
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c
DISI loop	Disable loop when all channels are idle
DISL loop	Disable network and DTI/PRI cards of loop
DLBK loop	Disable remote loop back test per RLBK command
DLBK l ch	Disable remote loop back test per RLBK l ch command
DSCH l ch	Disable channel ch of loop
ENCH loop	Enable all channels on 2.0 Mb/s DTI/PRI
ENCH l ch	Enable channel ch of DTI/PRI loop
ENLL loop	Enable network and DTI/PRI cards of loop
LCNT (loop)	List contents of alarm counters on one or all DTI/PRI loops
LOVF c r	List threshold overflows for customer c (0-99) and route r (0-511)
RCNT	Reset alarm counters of all DTI/PRI loops
RCNT loop	Reset alarm counter of DTI/PRI loop
RMST loop	Perform self-test on loop
RMST l ch	Perform self-test on specified channel (2.0 Mb/s DTI/PRI only)
RLBK loop	Close loop at carrier interface point for testing
RLBK l ch	Close channel ch at carrier interface point
RSET l ch	Reset thresholds for channel ch
SLFT loop	Invoke hardware self-test on loop
SLFT l ch	Invoke partial hardware self-test on channel ch
STAT	Get status of all loops
STAT loop	Get status of DTI/PRI loop
STAT l ch	Get status of channel ch

Clock controller commands

DIS CC n	Disable system clock controller n
DSCK loop	Disables the clock for loop
DSYL loop	Disable yellow alarm processing for loop
ENCK loop	Enable the clock for loop
ENL CC x <fdl>	Enable system clock controller x
ENYL loop	Enable yellow alarm processing for loop
EREF	Enable automatic switchover of system clocks
IDC x	Get card ID of Clock Controller card in side x
MREF	Disable switchover of system clocks
RST CC x	Reset side x of the Downloadable Clock Controller
SEFT CC x	Execute a self test on side x of the Downloadable Clock Controller.
SLFT CC x	Execute a selftest on side x of the Downloadable Clock Controller
SSCK n <full>	Get status of system clock n
SWCK	Switch system clock from active to standby
TRCK aaa n	Set clock controller tracking to primary, secondary or free run

Option 11C commands

The following commands are applicable to Option 11C systems:

ATLP (0), 1	Disable (default) or enable midnight auto loop test. Automatic Card Test, checks the same functions as the self-test.
DIS CC 0	Disable system clock controller 0.
DISI card	Digital card is disabled only when all the channels are IDLE. STATUS LEDs are lit. Channel states and loop state are set to DSBL.
DISL card	Disables Digital card. Active calls are forced disconnected by on-hook simulation. All channels are marked as DSBL.
DLBK card	Disables remote loop back test of RLBK on card. Card will remain in DSBL state.
DLBK c ch	Disables remote loop back test on channel ch of card c The channel will remain in DSBL state.
DSCH c ch	Channel ch of Digital card c is disabled. Status of the channel is marked DSBL.
DSCK card	Disable the clock for card. (Applicable for secondary reference only.)
DSYL card	Disable yellow alarm processing for card.
ENCH card	Enable all the channels on card. The status of each equipped channel will be set to IDLE.
ENCH c ch	Channel ch of card is enabled. The status of the channel is marked IDLE.
ENCK card	Enable the clock reference for secondary clock only.
ENL CC 0	Enable system clock controller 0
ENLL card	Enables card. All channels are set to IDLE status.
ENYL card	Enable yellow alarm processing for card.
LCNT	Prints contents of all alarm counters of all Digital cards.
LCNT card	Prints contents of all alarm counters for card.
RCNT	Resets all alarm counters of all Digital cards.
RCNT card	Resets all alarm counters for card.
RLBK card	Performs external loop back test on card. (Card must be disabled.)
RLBK c ch	Performs external loop back test on channel ch of card c. (Channel must be disabled.)
RMST card	Performs a far end loop test on card. (Card must be disabled).
RMST c ch	Performs a far end loop test on channel ch of card c. (Channel must be disabled.)
RSET c ch	Reset thresholds for channel ch

SLFT card	Invokes Digital hardware self-test on card. (Card must be disabled.)
SLFT c ch	Invokes Digital hardware self-test on channel ch of card c.
SSCK (0)	Get status of primary system clock 0.
STAT card	Prints status (BUSY/IDLE/DSBL/MNT-BUSY) of all channels on card.
STAT c ch	Prints status (BUSY/IDLE/DSBL/MNT-BUSY) of channel ch on card c.
TRCK aaa	Set clock controller tracking to primary, secondary or free run.

Alphabetical list of commands

Command	Description	Pack/Rel
ATLP (0), 1	Disable (0) or enable (1) daily routine auto loop test. Where: • 1 = loop test enable; causes far-end to raise and clear yellow alarm • 0 =run the partial loop test; there is no interaction for far-end loop (default value) LD 60 is included in the daily (midnight) routines if defined by LD 17 prompt DROL. ATLP is only run if LD 60 is included in the daily routines. If ATLP = 1, and all 24 channels on the loop are idle, then the DTI/PRI card is disabled and a self-test is performed on each channel. All DTI/PRI cards are tested, one at a time. If a D-channel is on the loop, it is temporarily released and reestablished. If one or more channels are busy, the test is not performed on the loop. If ATLP = 0, then an "AUTO TEST DSBL" message is output and only one channel is tested. The channel is randomly selected by software, it cannot be specified. Automatic Card Test, checks the same functions as the self-test. (Option 11C)	dti/pra-5
CDSP	Clear maintenance display to 00 or blank.	dti/pra-5
CMIN ALL	Clear minor alarm indication on all attendant consoles.	dti/pra-5
CMIN c	Clear minor alarm indication on attendant consoles for customer c.	dti/pra-5
DIS CC 0	Disable system clock controller. (Option 11C.)	
DIS CC x (0,1)	Disable system clock controller 0 or 1. CPU 0 must be idle to disable CC 0. CPU 1 must be idle to disable CC 1. To switch CPUs, use the SPCU command in LD 35.	dti/pra-5
DISI card	Card is disabled only when all the channels are IDLE. STATUS LEDs are lit. Channel states and loop state are set to DSBL. (Option 11C)	

DISI loop	Disable DTI/PRI loop when all channels are idle. The network and DTI/PRI cards are then disabled and status LEDs are lit. Channel status is set to BSY. Enter END to abort. When the PRI is physically connected to a DCHI card, the D-channels must be disabled first using LD 96.	dti/pra-5
DISL card	Disables card. Active calls are force disconnected by on-hook simulation. All channels are marked as DSBL and status LEDs are lit. (Option 11C)	
DISL loop	Disable network and DTI/PRI/DTI2/PRI2 cards of loop. (PRI & PRI2 loops cannot be disabled unless associated D-channel is disabled first using LD 96). Active calls are force disconnected by on-hook simulation. All channels are disabled and status LEDs are lit.	dti/pra-5
DLBK card	Disables remote loop back test of RLBK on card. Card will remain in DSBL state.(Option 11C)	
DLBK c ch	Disables remote loop back test of RLBK on channel ch. The channel will remain in DSBL state. (Option 11C)	
DLBK loop	Disable remote loop back test per RLBK command. Loop remains disabled.	dti/pra-5
DLBK l ch	Disable remote loop back test per RLBK loop ch command. The channel remains disabled.	dti/pra-5
DSCH c ch	Channel ch of Digital card is disabled. Status of the channel is marked DSBL. (Option 11C)	
DSCH l ch	Disable channel ch of loop l.	dti/pra-5
DSCK card	Disable the clock for card. For secondary clock reference only. (Option 11C)	
DSCK loop	Disables the clock for loop, which does not have to be previously defined as the primary or secondary clock source.	dti/pra-5
DSYL card	Disable yellow alarm processing for card. (Option 11C)	
DSYL loop	Disable yellow alarm processing for loop.	dti/pra-5

ENCH card	Enable all the channels of 2.0 Mb/s Digital card. The status of each equipped channel will be set to IDLE. (Option 11C)	
ENCH c ch	Channel ch of Digital card c is enabled. The status of the channel is marked IDLE. (Option 11C)	
ENCH loop	Enable all channels on DTI2 loop.	dti/pra-5
ENCH l ch	Enable channel ch of loop. For TIE trunks with A+B signaling, the channel is set to the same state as the far-end. The far-end refers to the status of the channels as presented by DTI T1 port. With B-channel signaling, channels are placed into the IDLE state and made available for calls.	dti 2 - 5
ENCK card	Enables the secondary clock reference. Primary clock reference can not be disabled through this command. (Option 11C)	
ENCK loop	Enables the clock for loop, which must be previously defined as a primary or secondary clock source via service change.	dti/pra-5
END	Aborts the program.	dti/pra-5
ENL CC x <fdl>	Enable system clock controller 0 or 1. Where: x = 0 or 1. fdl = Force DownLoad for the NTRB53 card with Release 25.40 and later.	dti/pra-5
ENLL card	Enables card. All channels are set to IDLE status. (Option 11C)	
ENLL loop	Enable network and DTI/PRI/DTI2/PRI2 cards of loop. For TIE trunks with A+B signaling, the channels are set to the same status as the far-end; otherwise, the channels are set to idle status. The far-end refers to the status of the channels as presented by DTI T1 port. Status LEDs are deactivated. With B-channel signaling, channels are placed into the IDLE state and made available for calls.	dti/pra-5
ENYL card	Enable yellow alarm processing for card. (Option 11C)	

ENYL loop	Enable yellow alarm processing for loop.	dti/pra-5
EREF	Enables automatic switchover of primary and secondary reference clocks. Also enables recovery to primary or secondary clocks when loops associated with these clocks are automatically enabled. (not supported for Option 11C)	dti/pra-5
IDC x	Get card ID of Clock Controller card in side x.	basic-25.4
LCNT (card)	List contents of alarm counters on one or all of the cases listed after LCNT (loop) command. (Option 11C)	
LCNT (loop)	List contents of alarm counters on one or all of the following cases	dti/pra-5
	Where:	fnf-25

- loop = 0-255, Option 81C with Fiber Network Fabric

Case 1 1.5 Mb/s DTI/PRI

The counters are:

- BPV = bipolar violation counter
- SLIPD = frame slip deletion counter
- SLIPR = frame slip repetition count
- LOSFA = loss of frame alignment counter
- OS_BPV = 24-hr bipolar violation counter
  - **a** For PRI with D2, D3, or D4 framing format, 24-hr bipolar violation counter
  - **b** For PRI with Extended Superframe Format, 24-hr Cyclic Redundancy Check (CRC) counter
- OS_LOSFA = 24-hr loss of frame alignment counter
- OS_YEL = 24-hr yellow alarm counter

Case 2 2.0 Mb/S DTI

The counters are:

- G1 alarms
- BPV = bipolar violation counter
- FAP = frame alignment threshold counter
- SLP = maintenance threshold slip counter
- CRC = cyclic redundancy threshold counter
- AIS = alarm indication signal
- AIS64 = 64 Kb/s alarm indication signal
- FAL = loss of frame alignment
- MFAL = loss of multiframe alignment
- BIT3 = bit 3 error
- BIT6 = bit 6 error
- CFAS = loss of crc-4 multiframe alignment (Option 11C only)

Case 3 2.0 Mb/s PRI

The counters are:

- BPV = bipolar violation counter
- CRC = cyclic redundancy threshold counter
- FAP = frame alignment threshold counter
- SLP = maintenance threshold slip counter
- AIS = alarm indication signal
- LFAS = loss of frame alignment signal
- LMAS = loss of multiframe alignment signal
- RAI = remote alarm indication
- LOS = loss of signal

LOVF c r	List threshold overflows for customer c (0-99) and route r (0-511). The overflows are set when the resident trunk monitor outputs a diagnostic message. Defined thresholds are HOLD, ILLR, REPT, SEIZ and SVFL (see LD 16).	dti/pra-5
MREF	Disable switchover of system clocks. Also disables recovery to primary or secondary reference clocks when loops associated with these clocks are automatically enabled. (not supported for Option 11C)	dti/pra-5
RCNT (card)	Reset alarm counters for all or specified card only. (Option 11C)	dti-16

RCNT (loop)	Reset alarm counters for all or specified loop only. If the DTI loop was disabled due to an error threshold overflow and the DTI may be enabled automatically when the counter is cleared, then before performing any command, such as test, that requires the DTI to be disabled you should: 1. disable the DTI 2. list the counters with the LCNT command 3. reset the counters with the RCNT command 4. do the test commands	dti/pra-5
REST l	Perform self-test on specified loop l where: • l = 0-255, Option 81C with Fiber Network Fabric	fnf-25
RLBK card	Performs external loop back test on card. (Card must be disabled). (Option 11C)	
RLBK c ch	Performs external loop back test on Digital Channel ch of card. (Channel ch must be disabled). (Option 11C)	
RLBK loop	Close loop at carrier interface point for testing. Allows the far-end to perform an external loop back test on the carrier span using the RMST command. This command closes the loop at the carrier interface point of the DTI/PRI. The DTI/PRI loop must be disabled first using the DISI or DISL loop commands.	dti/pra-5
RLBK l ch	Close channel ch at carrier interface point. Allows the far-end to perform an external loop back test on the carrier span. The loop remains enabled, but closes the specified channel at the carrier interface point of the DTI/PRI. The DTI/PRI channel must be disabled first using the DSCH loop ch command.	dti/pra-5
RMST card	Performs a far end loop test on card. (Card must be disabled). (Option 11C)	dti-16
RMST c ch	Performs a far end loop test on Channel ch of card c. (Channel ch must be disabled). (Option 11C)	dti-16
RMST loop	Perform remote loop back test on loop. The far-end must be in the remote loop back mode. (RLBK command has been issued at the far-end)	dti/pra-5

RMST l ch	The far-end channel must be in the remote loop back mode. (RLBK command has been issued at the far-end)	dti 2 - 14
RSET c ch	Reset thresholds for channel ch on card c. (Option 11C)	
RSET l ch	Reset thresholds for channel ch on loop l.	dti/pra-5
SEFT CC x	Execute a self test on side x of the Downloadable Clock Controller.	basic-25.4
SLFT card	Invokes Digital hardware self-test on card. (Card must be disabled). (Option 11C)	
SLFT c ch	Invokes Digital hardware self-test on channel ch on card c. (Option 11C)	
SLFT loop	Invoke DTI/PRI hardware self-test on loop. This command tests speech path continuity, zero code suppression, remote alarm detection, and A&B bit signaling. The loop must be disabled first using the DISI or DISL loop command.	dti/pra-5
SLFT l ch	Invoke partial hardware self-test on channel ch. The DTI/PRI channel must be disabled first using the DSCH command.	basic-1
SSCK x <full>	Get status of system clock x. Where: x = 0 or 1. full = Get full status of clock in side x, including serial number and loadware versions and states. The SSCK command indicates the active controller as well as active primary or secondary reference clock source or free run.	dti/pra-5 basic-25.4

Response may be:

1. `AUTO SWREF CLK - ENBL` = automatic switchover of system clocks enabled
2. `AUTO SWREF CLK - DSBL` = automatic switchover of system clocks disabled
3. `CLOCK ACTIVE` = the active controller
4. `DSBL` = clock disabled
5. `ENBL` = clock enabled
6. `REF CLK ERR` = possible faulty cable from CC to DTI/PRI, or faulty Clock Controller
7. `SYSTEM CLOCK` - FREE RUN, PREF or SREF = clock is in free run mode or tracking to the primary (PREF) or secondary (SREF) reference loop
8. `VCXO AGING ERROR` = the timing crystal is faulty, replace the clock

For small systems sipe-25

- x = 0, main cabinet clock
- x = 1, 2, 3, 4, IP expansion cabinet number

Main cabinet example

```
.ssck 0
DSBL
PLL1 DSBL
PLL2 DSBL
CABINET CLK SRC: CC
```

Expansion cabinet example

```
.ssck 1
DSBL
IPDB1 LOCKED
CABINET CLK SRC: IPDB
```

Port 2, 4 Phase Locked Loop (PLL) status can be DSBL, LOCKING, or LOCKED.
Cabinet clock source can be PLL or CC.

STAT Get status of all digital loops. The types of loops are: dti/pra-5

1. PRI = Primary Rate Interface
2. PRI2 =2.0 Mb/s Primary Rate Interface
3. DTI = Digital Trunk Interface
4. DTI2 =2.0 Mb/s Digital Trunk Interface
5. DLI = Digital Link Interface
6. JDMI = Japan Digital Multiplex Interface

STAT card — Prints status (BUSY/IDLE/DSBL/MNT-BUSY) of all channels on Digital Card. See STAT loop for possible responses. (Option 11C) — dti-16

STAT c ch — Prints status (BUSY/IDLE/DSBL/MNT-BUSY) of channel Ch, for Digital card. (Option 11C). See STAT l ch for possible responses. — dti-16

STAT loop — Get status of digital loop. Sample output: — dti/pra-5

```
AAA TRK LOOP x - BBBB
SERVICE RESTORE: YES/NO
YEL ALM PROCESS: YES/NO
ALARM STATUS: NO ALARM/RED(local) ALARM
```

Where: **AAA** may be :

1. DTI
2. DTI2
3. PRI
4. PRI2
5. TIE
6. DID
7. DTI LINK (DTI link loop = DLI)

Where: **BBBB** may be:

1. DSBL = Hardware of specified digital loop is disabled
2. ENBL = Hardware of specified digital loop is enabled
3. RLBK = Hardware of specified digital loop is in remote loop back mode
4. DISI PENDING = DSI command is in progress
5. TRACKING = system clock is tracked to this loop
6. IDLE = Hardware of specified digital loop is idle

   When **AAA** = TIE, IDLE ISPC indicates that the channel is an established ISPC link ready to be used by any end-users having access to the associated ISPC route.
7. SERVER RCVY = server has not recovered status of DTI LINK loop. Channels will not be allocated for call processing until this status is removed by the server
8. BUSY = Hardware of specified digital loop is busy

When **AAA** = TIE, BUSY ISPC indicates that the channel is an established ISPC link which is used by end users on the PBXs.

When **AAA** = DID, BUSY ISPC indicates that the ISPC link is established to the Central Office. The status "BUSY" is independent to ISL feature usage of the ISPC link.

9. MSBY = Hardware of specified digital loop is in make busy mode
   When **AAA** = TIE, MSBY ISPC indicates that the configured ISPC link is one of the following:
   a not established yet
   b established, but the ISL D-channel which controls its usage not established

Where: **SERVICE RESTORE** may be:

1. YES = restore service automatically if alarm is removed
2. NO = loop can only be manually enabled

Where: **YEL ALARM PROCESS** may be:

1. YES = yellow alarm processing is enabled
2. NO = yellow alarm processing is disabled

Where: **ALARM STATUS** may be:

1. NO ALARM = no alarm active
2. RED = red (local) alarm active

Action 1:

1. list alarm counters (LCNT command)
2. check for DTA messages
3. go to the fault clearing section

Where:

- YELLOW = yellow (remote) alarm active
- WAITING = DTI/PRI card is not responding. The card either did not respond to a status check or did not respond when a red alarm was cleared. Go to Action 2.

Action 2:

1. check DTI/PRI status again
2. disable, then enable the DTI/PRIPRI

STATE OF SERVICE:

- OOS = out-of-service
- NNC = no new call
- NNDC = no new data call
- MNT = maintenance

When an alarm is present (group 2 error), it is a REMOTE ALARM

REMOTE ALARM:

- NS = alarm indication signal
- RAI = remote alarm indication

LOCAL ALARM:

- LOS = loss of signal
- LFAS = loss of frame alignment signal
- LMAS = loss of multiframe alignment signal
-

STAT l ch — Get status of channel ch. Status may be: — dti/pra-5

1. IDLE = channel is enabled and is idle
2. BUSY = channel is enabled and is call processing busy or channel is in a lockout state (far-end is disabled)
3. MBSY = channel is being used for maintenance busy, the D-channel is down, or far-end channel is disabled
4. DSBL = channel is disabled
5. DSBL (SERVER) = channel is being used for server maintenance and is disabled for the duration (1.5 Mb/s DTI digital link interface only)
6. FE MBSY = near end is idle, far-end is maintenance busy
7. FE DSBL = near end is idle, far-end is disabled
8. FE DSBL = far-end B-channel is disabled
9. FE MBSY = far-end B-channel is in maintenance mode
10. UNEQ = channel is not equipped

When the loop is a Phantom loop, it is possible to receive the status messages: TIE IDLE ISPC, TIE BUSY ISPC, or TIE MSBY ISPC. Interpret these system responses as they are interpreted for the command STAT loop. See the section which outlines BBBB alternatives for the STAT loop command on page 349.

SWCK	Switch system clock from active to standby. (not supported for Option 11C) The reference clock source remains unchanged.	dti/pra-5
TRCK aaa n	Set clock controller tracking to primary, secondary or free run. Where aaa is: • PCK = track primary clock • SCLK = track secondary clock • FRUN = free run mode Track primary clock (PCK) or secondary clock (SCLK) as the reference clock or go to free run (FRUN) mode.	dti/pra-5

LD 61: Message Waiting Lamps Reset

The Message Waiting Lamps Reset (MWL) program can be invoked automatically by the system as part of the daily routines or manually from an input device. It is used to deactivate all active Message Waiting lamps on user stations and reset the associated status in the system.

This program cannot be applied to digital sets.

When LD 61 is loaded manually, 'G' must be entered to initiate the task.

G command

Starts resetting the trouble status on all Message Waiting lamps. The program does not reset lamp status unless all message center sets are out-of-service (i.e., message center is closed and attendants are in Night Service).

Before running this program, all Message Center (MC) telephones must be taken out-of-service by “make telephone busy” and if attendants are set up to handle message calls, they must be in night mode.

LD 62: 1.5 Mb/s Remote Peripheral Equipment Local End Diagnostic

This program is loaded manually to test the local equipment associated with a particular carrier going to a remote site.

Note: Program 62 is not supported on Option 11C systems.

When to use LD 62

It is assumed that either:

- a manually requested or automatic test using LD 33 has indicated a fault which may be due to a failure of either local or remote equipment by one of the following messages: RPD202, RPD230, RPD232, RPD240, RPD250.
- a carrier has been disabled automatically and RPD211, RPD214 or RPD215 was printed.

This program is used to determine whether the fault is at the local Meridian 1/Meridian SL-1 site. It is necessary to disable the carrier to be tested before performing the local loop around test.

If a local end fault is detected and cleared, a complete test using LD 33 should then be done.

The program operates on one loop, which must be defined via the DFLP command. If a command is issued when no loop number has been specified, the response LOOP? will be output.

Fiber Network Fabric

The Fiber Network Fabric extends and enhances the 5-group network architecture to 8 non-blocking (inter-group) Network groups, with a resulting expansion in network capacity to 8k timeslots available for Intergroup traffic. This is achieved by using OC-12 SONET rings, and adding additional network and PE shelves, cards and cables and software changes to allow using the expanded network capacity. This expansion increases the number of available loops from 160 to 256. This applies to the Option 81C only.

Basic commands

DFLP loop	Define RPE loop
DISC c l	Disable carrier c on loop l
DISI c	Disable carrier c once it is idle
END	Terminate active command
ENLC c	Enable carrier c
LFLT	List speech timeslots that failed LOCL test
LOCL c	Perform loop around test on carrier c
LOCL c ALL	Loop around test for all speech timeslots on carrier c
LPBK c	Close loop back relay on carrier c
SCAR	Switch primary carriers
STAT	Get status of carrier specified by DISI
STAT CAR loop	Get status of all carriers on loop
UNLP c	Open loop back relay on carrier c

Alphabetical list of commands

Command	Description	Pack/Rel
DFLP loop	Define RPE loop. Defines the loop for the following commands. The specified loop must be an enabled RPE loop.	basic-1
DISC c l	Disable carrier c on loop l. Must be the current secondary carrier. Any calls using this carrier will be disconnected.	basic-1
DISI c	Disable carrier c once it is idle. The number of channels still busy on the carrier may be checked using the STAT command.	basic-1
END	Terminate active command. If no command is in progress, the active DISI command is canceled.	basic-1
ENLC c	Enable carrier c. If the operation is successful, `OK` is output.	basic-1
LFLT	List speech timeslots that failed LOCL test. If no channels failed or if no test has been performed, the response is `NONE`.	basic-1
LOCL c	Perform loop around test on carrier c. Carrier c must be disabled when the command is given. The command tests the local equipment associated with the carrier, plus the continuity of the 10 speech timeslots which are always carried by this carrier (see below). If all tests pass, response is OK. The carrier is left in the “manually disabled” state. Speech timeslots carried by each carrier: **Carrier** **Timeslots** primary 4, 5, 10, 11, 20, 21, 26, 27, 28, 29 0 6, 7, 12, 13, 14, 15, 22, 23, 30, 31 1 2, 3, 8, 9, 16, 17, 18, 19, 24, 25	basic-1

LOCL c ALL	Loop around test for all speech timeslots on carrier c. Similar to LOCL command, except that all 20 speech timeslots plus the signaling channel will be tested, provided the channels are not being used by active calls. Execution of this command will cause temporary disruption of all active calls on the loop. The command should be used only when LOCL command tests OK without the ALL option and a fault is still indicated by a complete test using LD 33. Response will include: `x SLOTS TESTED`, giving the number of speech channels actually tested (maximum 20)	basic-1
LPBK c	Close loop back relay on carrier c. Carrier c must be disabled. The relay remains closed until an ENLC or UNLP command is given.	basic-1
SCAR	Switch primary carriers. This command is allowed only if both the current secondary carrier is enabled, and no faults exist on the current secondary carrier which would reduce the number of working speech channels if it were to become the primary carrier.	basic-1
STAT	Get status of carrier specified by DISI. If no DISI request is active, error message RPL022 is output.	basic-1
STAT CAR loop	Get status of all carriers on specified loop. Response will be one or more of: 1. `PRIME` = carrier is currently the primary one 2. `DSBL` = carrier is disabled 3. `LPBK` = loop back relay is closed 4. `x BUSY` 5. `y DSBL` The values x and y indicate the number of busy channels and number of channels having continuity failure from the most recent tests in LD 33. The LOCL command does not change the number of disabled channels.	basic-1
UNLP c	Open loop back relay on carrier c.	basic-1

LD 66: Conversion

Conversion programs are used to convert to a new version of software. The procedure used for this process depends on the versions of software involved.

Refer to the *Software Conversion* NTP and Controlled Release Bulletins (provided with new software).

LD 75: Digital Trunk Maintenance

This program lets you test digital channels, bring a digital (IDA) link into service or take a link out-of-service.

All Overlay 75 commands may be used on Option 11C systems by substituting card number for loop number.

Basic commands

CDSP	Clears the maintenance display
CMIN ALL	Clears minor alarm for all customers
CMIN c	Clears a minor alarm for customer c
DIS DDCS loop	Disables DDCS loop
DIS DDSL n	Disables DDSL n
DIS DTCS loop	Disables DTCS loop
DIS DTRC l c	Disables real channel c on loop l
DIS DTSL n	Disables DTSL n
DIS DTVC l c	Disables virtual channel c on loop l
DIS LSSL n	Disables Low Speed Signaling Link n for APNSS
DIS MON l	Disables monitoring of level 3 messages on a DDSL loop l
DIS MSGI	Disables monitoring of incoming messages for all DDSL
DIS MSGO	Disables monitoring of outgoing messages for all DDSL
DIS PRI2 loop	Disables PRI2 loop
DISI DDCS loop	Disables all channels on loop as they become idle
DISI DTCS loop	Disables all channels on loop as they become idle
ENL DDCS loop	Enables DDCS loop
ENL DDSL n	Enables DDSL n
ENL DTCS loop	Enables DTCS loop
ENL DTRC l c	Enables real channel c on loop l
ENL DTSL n	Enables DTSL n
ENL DTVC l c	Enables virtual channel c on loop l
ENL LSSL n	Enables Low Speed Signaling Link n for APNSS
ENL MON l	Enable monitoring of level 3 messages on a DDSL loop l in long format
ENL MON l aaaa	Enable monitoring of level 3 messages on a DDSL loop l in aaaa formats
ENL MSGI	Enable monitoring of incoming messages for all DDSL loops
ENL MSGO	Enable monitoring of outgoing messages for all DDSL loops
STAT DDCS (loop)	Gives status of all DDCS loops if loop omitted. Gives status of DDCS loop and all channels on loop if loop specified.
STAT DDSL (n)	Gives status of all DDSLs if n omitted. Gives status of DDSL n if n specified.

STAT DTCS (loop)	Gives status of all DTCS loops if loop omitted. Gives status of DTCS loop and all channels on loop if loop specified.
STAT DTRC l c	Gives status of real digital channel c on loop l
STAT DTSL (n)	Gives status of all DTSLs if n omitted. Gives status of DTSL n if n specified.
STAT DTVC l c	Gives status of virtual digital channel c on loop l
STAT LSRC n (x)	Gives status of Real Channel x on Signaling Link n
STAT LSSL n	Gives status of Low Speed Signaling Link n for APNSS
STAT LSVC n (x)	Gives status of Virtual Channel x on Signaling Link n
STAT PRI2 loop	Gives status of PRI2 loop
STRT n	Starts DDSL n

Note: If GEC Plessey Telecommunications (GPT) hardware is used, the mnemonic DTSL is used instead of DDSL and the mnemonic DTCS is used instead of DDCS.

Alphabetical list of commands

Command	Description	Pack/Rel
CDSP	Clears the maintenance display.	dpnss-16
CMIN ALL	Clears minor alarm for all customers.	dpnss-16
CMIN c	Clears a minor alarm for customer c.	dpnss-16
DIS DDCS loop	Disables DDCS loop.	dpnss-16
DIS DDSL n	Disables DDSL n.	dpnss-16
DIS DTCS loop	Disables DTCS loop	dpnss-16
DIS DTRC l c	Disables real channel c on loop l.	dpnss-16
DIS DTSL n	Disables DTSL n.	dpnss-16
DIS DTVC l c	Disables virtual channel c on loop l.	dpnss-16
DIS LSSL n	Disables LSSL n.	dpnss-16
DIS MON loop	Disables monitoring of level 3 messages on a DDSL loop	
DIS MSGI	Disables monitoring of incoming messages for all DDSL	dpnss-24
DIS MSGO	Disables monitoring of incoming messages for all DDSL	dpnss-24
DIS PRI2 loop	Disables PRI2 loop	

DISI DDCS loop	Disables all channels on loop as they become idle. The message “OK DISABLING” is issued and further commands can be entered. DTM055 is issued when all of the channels are disabled.	dpnss-16
DISI DTCS loop	Disables all channels on loop as they become idle.	dpnss-16
ENL DDCS loop	Enables DDCS loop.	dpnss-16
ENL DDSL n	Enables DDSL n.	dpnss-16
ENL DTCS loop	Enables DTCS loop.	dpnss-16
ENL DTRC l c	Enables real channel c on loop l.	dpnss-16
ENL DTSL n	Enables DTSL n.	dpnss-16
ENL DTVC l c	Enables virtual channel c on loop l.	dpnss-16
ENL LSSL n	Enables Low Speed Signaling Link n for APNSS.	dpnss-16
ENL MON l	Enables monitoring of level 3 messages on a DDSL loop l (by default, both incoming and outgoing messages are monitored)	dpnss-24
ENL MON l aaaa	Enable monitoring of level 3 messages on a DDLS loop l. Where aaaa can be one of the following: • shrt = short format • long = long format • decd = decoded format	dpnss-24
ENL MSGI	Enables monitoring of incoming messages for all DDSL loops	dpnss-24

ENL MSGO	Enables monitoring of outgoing messages for all DDSL loops	dpnss-24
STAT DDCS (loop)	Gives status of all DDCS loops if loop omitted. Gives status of DDCS loop and all channels on loop if loop specified.	dpnss-16
STAT DDSL (n)	Gives status of all DDSLs if n omitted or specified.	dpnss-16
STAT DTCS (loop)	Gives status of all DTCS loops if loop omitted. Gives status of DTCS loop and all channels on loop if loop specified.	dpnss-16
STAT DTRC l c	Gives status of real digital channel c on loop l	dpnss-16
STAT DTSL (n)	Gives status of all DTSLs if n omitted. Gives status of DTSL n if n specified.	dpnss-16
STAT DTVC l c	Gives status of virtual digital channel c on loop l	dpnss-16
STAT LSRC n (x)	Gives status of Real Channel x on Signaling Link n	dpnss-16
STAT LSSL n	Gives status of Low Speed Signaling Link n for APNSS	dpnss-16
STAT LSVC n (x)	Gives status of Virtual Channel x on Signaling Link n	dpnss-16
STAT PRI2 loop	Gives status of PRI2 loop	
STRT n	Starts DDSL n The message "OK, STARTING" is issued and further commands can be entered. DTM301 is issued when the link is successfully started.	dpnss-16

LD 77: Manual Print

LD 77 is used to print the signals that come from the peripheral cards to the common equipment.

> ***Note:*** This Overlay is intended for people experienced with the message formats and protocols.

Some loop-level commands are not valid on Option 11C systems, and have been replaced with slot-level commands.

When to use LD 77

LD 77 can be useful in determining which peripheral card (line or trunk) is causing a system overload in situations in which the CPU cannot narrow the problem to a specific Terminal Number (TN). Once the program is loaded from a tape, the user may request the system to print all the input messages from a specific area of peripheral equipment.

Manual Print can also be used to continuously send frequency combinations by defining the loop and terminal number of the MFE card, busying the channel, setting the read/write bit to write, defining the message and repeatedly sending it. This channel will not be available for regular signaling until the message sending is stopped and the channel is idled.

When a machine is carrying traffic, there will be a large number of valid messages generated from the peripheral equipment. Thus, the program will be most effective for trouble-shooting when:

- there is little system traffic
- message address range is restricted (i.e., looks only at one shelf or loop)

This program has capabilities which are used by the software designers during development activities. The user is protected from accidental access to these commands (and resulting potential service degradation) as a password is required. This password is not available to customers.

LD 77 Output Format

All numerical input/output is in hexadecimal format. The output is in the following format:

<loop> <shelf> <card> <terminal> <message> <time-stamp>

The loop, shelf and card fields identify the circuit card generating the message.

Abbreviations for LD 77

The fields are defined as follows:

b = bypass bit value

cb = continuity bit

ch = chip on a given SSD Peripheral Signaling card

g = group

l s c u = TN: loop, shelf, card, unit

ln = link

loop = network loop

m = module

p = page

ps = Peripheral Signaling card

sh = Multigroup shelf

ts = time slot

v = desired lamp state; 0 = lit, 1 = dark

x = Multigroup bit

Some four-letter commands can be abbreviated to a one-letter command when entered from a TTY (but not an SL-1 telephone). The one-letter command is shown in parentheses after the four-letter mnemonic (e. g., ARPS (F) l s 32 can be entered as F l s 32).

LD 77 Input Format

All input is in decimal form, except message data which is in hexadecimal form. Space and carriage return are automatically done by the overlay when the expected number of digits are input. Therefore the number of input digits must be strictly entered for each input parameter. The number of letters specified in each parameter field dictate the number of hex or decimal digits that must be entered.

For example:

Enter for TN 1 0 2 0:

001 0 02 00

Enter for TN 156 1 15 30:

156 1 15 30

Fiber Network Fabric

The Fiber Network Fabric extends and enhances the 5-group network architecture to 8 non-blocking (inter-group) Network groups, with a resulting expansion in network capacity to 8k timeslots available for Intergroup traffic. This is achieved by using OC-12 SONET rings, and adding additional network and PE shelves, cards and cables and software changes to allow using the expanded network capacity. This expansion increases the number of available loops from 160 to 256. This applies to the Option 81C only.

Basic commands

Only "P" commands can be used on superloops. Some of these commands may not be valid on Option 11C systems; for valid Option 11C commands see LD 77 Option 11C commands in this section.

ANWK (B) loop ts	Read/write network card memory
ANWS (C) loop ts	Read/write network card memory (short)
ARPM loop 20	Print contents of timeslots in RPC
ARPM loop ts b s c u	Get contents of timeslot ts, loop
ARPS (F) loop ts	Read Remote Peripheral Switch memory
DENL loop	Get the density of loop
DFTM (T) s c u	Define unit to receive signaling messages
DLMP 0/1	Turn on/off lamp audit
DMTN	Monitor input and output SSD messages for 1 to 6 TNs
DISC	Call disconnect
DRTM (N) l s c u	Stop printing messages
KALL	Call set up without specifying timeslots
KALS	Call set up with specifying timeslots
KILLx	Reset one or all TN being monitored
N	Stop print
P	Print all messages
P lll	Print all messages from specified loop lll
P lll s	Print all messages from specified shelf lll s
P lll s cc	Print all messages from specified card lll s cc
PRTM (P) l s c u	Print messages, as specified l s c u
IMSG	Send input SSD messages from PE to Meridian 1 CPU
WCTS loop	Print the current unit scan of loop
WMBY l s c u	Write the maintenance bit for the given unit to BUSY
WMUB l s c u	Write the maintenance bit for the given unit to NOT BUSY
XMSG	Send output SSD messages from Meridian 1 CPU to PE

XMII, XMIO	Send input/output XMI messages between the CPU and superloops
XRCL loop	Read contents of RPC control register for loop
XRSH loop	Read and print contents of SHEN register for loop
XRST loop	Read and print contents of STATUS register for loop
XTRP loop	Test remote RPC processor for loop
XTLP loop	Test local RPC processor for loop
XWCS loop xxxx	Writes RPC control/SHEN register for loop

Option 11C commands

DFTD c ch	Define the digital channel to receive subsequent messages
DISC	Call disconnect
DLMP n	For n=0, turn on lamp audit; for n=1, turn off lamp audit
DMTN	Monitor input and output SSD messages for 1 to 6 TNs
DPRT card	Print messages from this digital card
DPRT c ch	Print messages from this digital channel
DRTD card	Stop printing messages from this digital card
DRTD c ch	Stop printing messages from this digital channel
IMSG	Send input SSD messages from XPE to CPU
KALL	Call setup without specifying timeslots
KALS	Call set up specifying timeslots
KILL x	Reset one or all TNs being monitored
P card	Print all messages from the specified card
P c u	Print all messages from the specified unit
XMSG	Send output SSD messages from CPU to XPE

Alphabetical list of commands

Command	Description	Pack/Rel
ANWK (B) loop ts	Read/write network card memory. Access the specified network card memory to read and print one word. The word format is: <cb s c u x ln --> Where: cb = continuity bit, s = shelf, c = card, u = unit, x = multigroup bit and ln = link You can write in new data. To change the values, rekey the word after the dashes, substituting new values where appropriate.	basic-1
ANWS (C) loop ts	Read/write network card memory (short). Access the specified network card memory (short form) to read and print one word. The multigroup bit and continuity field are not used. The word format is: <s c u ln --> Where: s = shelf, c = card, u = unit and ln = link. You can write in new data. To change the values, rekey the word after the dashes, substituting new values where appropriate.	basic-1
ARPM loop 20	Prints contents of 32 timeslots in RPC associated with loop (20 hexadecimal = 32 decimal).	basic-1
ARPM loop ts b s c u	Get contents of timeslot ts, loop. The system prints data in the form “bscu”, where b is the current value of the bypass bit in the Remote Peripheral Equipment Controller (RPC) memory (0 or 1) for that shelf, card and unit. The user can enter a new bypass bit for the RPC memory after the dash.	basic-1

ARPS (F) loop ts	Read Remote Peripheral Switch memory. Access the specified Remote Peripheral Switch (RPS) memory to read and print one word. The word format is: <cb s c u -->. Where: cb = continuity bit, s = shelf, c = card and u = unit. You can write in new data. To change the values, rekey the word after the dashes, substituting new values where appropriate.	basic-1
DENL loop	Get the density of loop.	basic-1
DFTD c ch	Define the digital channel to receive subsequent messages. (Option 11C)	
DFTM (T) s c u	Define unit to receive signaling messages.	basic-1

DISC	Call disconnect. Format is:
	`DISC`
	`TN1 l s c u`
	`TN2 l s c u`
	This command disconnects the call specified by the TNs. A scan of the connection memory is done prior to disconnecting the call, if no timeslot can be found for the specified TN, nothing is done. TN1 and TN2 are prompted by the program.
		xpe-15

DLMP 0/1	Turn on/off lamp audit. Format is: • `DLMP 0` = turn on lamp audit • `DLMP 1` = turn off lamp audit	xpe-15

DMTN	Monitor input and output SSD messages for 1 to 6 TNs. This command is used to monitor all SSD messages for the specified TN. TN is automatically prompted by the program. Up to 6 TNs can be monitored at the same time. Enter the DLPM and DMTN commands as follows: DLMP 2 DMTN TNx l s c u Where: x = (1-6), TN index The output format is: `OSSD111 TN MSG TIME` Where: • `OSSD111` = header • `TN` = packed TN • `MSG` = SSD message content • `TIME` = real time clock before output when work scheduler gets the input message	xpe-15
DPRT c ch	Print messages from this digital channel (Option 11C).	xpe-15
DPRT card	Print messages from this digital card. (Option 11C).	xpe-15
DRTD c ch	Stop printing messages from this digital channel. (Option 11C).	xpe-15
DRTD card	Stop printing messages from this digital card (Option 11C).	xpe-15
DRTM (N) l s c u	Stop printing messages from the loop, shelf, card and unit. Only loop and shelf numbers are required.	basic-1

IMSG — Send input SSD messages from PE to Meridian 1 CPU. This command is used to simulate incoming SSD message from the peripheral equipment. The specified TN must be equipped. xpe-15

Format is:

```
IMSG
TN l s c u
NUMBER MESSAGES mm
# TIMES TO SEND hhh
MSG DATA xxxx xxxx xxxx xxxx. . .
```

Where:

- mm = number of SSD messages (1-10) to be sent
- hhh = number of times (1-999) to simulate the SSD input message
- xxxx = SSD message content. Number of message contents depends on input of mm

TN, NUMBER MESSAGES, # TIMES TO SEND, and MSG DATA are prompted by the program.

KALL — Call set up without specifying timeslots. xpe-15

This command is used to set up a simple call (intra or inter-group). The system finds an available timeslot for the specified TNs. The specified TN must be equipped, enabled and idle.

Format is:

```
KALL
TN1 l s c u,
TN l s c u (Option 11C)
Loop 0 00 CH for Digital Trunk Cards.
TN2 l s c u,
TN l s c u (Option 11C)
Loop 0 00 CH for Digital Trunk Cards.
```

TN1 and TN2 are automatically prompted by the program.

If AUDIT is running, call(s) are disconnected, and AUD17, AUD18, AUD19, and/or AUD31, AUD32 is printed.

Call setup command simply finds the available timeslots and sets up the connection memory and/or junctor memory. BUG105, BUG330 may be printed if illegal sequences are carried out.

These commands are designed for lab use only, and should be used cautiously in a live switch.

KALS	Call set up with specifying timeslots.
	
	This command will set up a call specified by the input TNs and the timeslots if both TNs are equipped, enable and idle. The specified timeslots will be used if they are idle, if the specified timeslot are occupied, then the call will not be set up. See Notes with the KALL command.
	
	Format:
	
	`KALS`
	`TN1 l s c u,`
	`TN l s c u,` (Option 11C)
	`Loop 0 00 CH for Digital Trunk Cards.`
	`TN2 l s c u,`
	`TN l s c u,` (Option 11C)
	`Loop 0 00 CH for Digital Trunk Cards.`
	`TIMESLOTS ts1 ts2`
	
	Where:
	
	• `ts1` = specified timeslot of the TN1
	• `ts2` = specified timeslot of the TN2
	• `TN1`, `TN2`, and `TIMESLOTS` are prompted by the program.
		xpe-15

KILLx	Reset one or all TN being monitored. Where: x = the TN index number (1-6) entered with the DMTN command. Enter 7 to reset all the output monitored TNs.	xpe-15
N	Stop print.	basic-1
P	Print all messages.	basic-1
P card	Print all messages from specified card. (Option 11C)	basic-15
P c u	Print all messages from specified unit. (Option 11C)	basic-15
P lll	Print all messages from specified loop. Enter the exact number of digits. Example: for loop 4, enter 004	basic-1
P lll s	Print all messages from specified shelf. Enter the exact number of digits. Example: for loop 4, enter 004.	basic-1
P lll s cc	Print all messages from specified card. Enter the exact number of digits. Example: for loop 4, enter 004.	basic-1

PRTM (P) l s c u	Print messages, as specified. Only loop and shelf numbers are required. Enter the exact number of digits. (Example: for loop 4, enter 004.)	basic-1
WCTS loop	Print the current unit scan of specified loop. Outputs shelf, card and unit.	basic-1
WMBY l s c u	Write the maintenance bit for the given unit to BUSY.	basic-1
WMUB l s c u	Write the maintenance bit for the given unit to NOT BUSY.	basic-1

XMII, XMIO	Send input/output XMI messages between the CPU and superloops.
	Send input/output XMI messages to the Peripheral Controller (NT8D01) or Network card (NT8D04). Use XMII for input messages from the Network card (NT8D04) to the CPU. Use XMIO for messages from the CPU to the Network.
	This command is used to simulate input/output XMI message. It may not be useful in LD 77, a similar command is available in resident debugger.
	Format:
	`XMII or XMIO`
	`LOOP lll`
	`NUMBER MESSAGES m`
	`# TIMES TO SEND hhh`
	`MSG DATA`
	`cccc xxxx xxxxxxxx`
	`cccc xxxx xxxxxxxx`
	`cccc xxxx xxxxxxxx`
	Where:
	• `lll` = Loop number
	• `m` = Number of multiple XMI messages (1-6)
	• `hhh` = Number of times to send XMI messages (1-999)
	• `cccc` = Control word; cccc is defined as follows:
	`r ss applic type`
	` - | -- | ------ | ------- |`
		xpe-15

Where:

- r = one bit msg ready flag, always sets to
- ss = two bit sequence status field. ss may be:
  - **a** B.00 : short message
  - **b** B.01 : starting a long message (message has 6 or more words of data)
  - **c** B.10 : continue a long msg
  - **d** B.11 : end of a long msg
- applic = six bit value for msg's intended application. appl may be:
  - **a** B.000001 : for LD 30
  - **b** B.000010 : for LD 32
  - **c** B.000011 : for LD 45
  - **d** B.000100 : for LD 77
  - **e** B.000101 : for XPE parameter download
  - **f** B.000110 : for XNET action request
- type = seven bit value of message type
- xxxx = message data
-

XMSG — Send output SSD messages from Meridian 1 CPU to PE. — xpe-15

This command is used to send output SSD message to the peripheral equipment TN. The specified loop of the TN must be enabled and responding.

Format:

```
XMSG
TN l s c u,
TN l s c u, for Option 11C only
Loop 0 00 CH for Digital Trunk Cards.
NUMBER MESSAGES mm
# TIMES TO SEND hhh
MSG DATA xxxx xxxx xxxx. . . .
```

Where:

- mm = number of SSD messages to be sent (1-10)
- hhh = number of times to output SSD message (1-999)
- xxxx = SSD message content. Number of message contents depends on the value of mm
- TN, NUMBER MESSAGES, # TIMES TO SEND, and MSG DATA are prompted by the program.

XRCL loop	Read contents of RPC control register.	basic-1
XRSH loop	Read and print contents of SHEN register.	basic-1
XRST loop	Read and print contents of STATUS register.	basic-1
XTLP loop	Test local RPC processor for loop.	basic-1
XTRP loop	Test remote RPC processor for loop.	basic-1
XWCS loop xxxx	Writes RPC control/SHEN register for loop with data xxxx in hexadecimal format.	basic-1

LD 80: Call Trace

LD 80 provides a means of tracing a call by looking at a snap shot of the transient data (such as call register contents) associated with the call. The trace commands operate only when this Overlay is active. If LD 80 is aborted (****), the trace functions stop. Note that when using the enhanced trace commands, the Overlay will not automatically abort (according to the defined time-out period) if calls are being traced.

When a system initialization occurs, all trace commands are removed, and the trace operation is stopped.

For Network Call Trace see NCT messages.

Enhanced Trace Commands.

The enhanced trace function requires Multi-User Login functionality (package 242) to be enabled in LD 17. The enhanced commands are: DALL, DIST, ENTC, ENTD, GOTR, FITR, and STPT. These commands interact with each other only.

The enhanced trace commands can be disabled through a maintenance telephone by dialing the following: nn + 9913 + x + yy

Where:

- nn = customer SPRE access code
- 9913 = feature code to display for message display control
- x = action code (0 to deactivate)
- yy = message monitor code (02 for enhanced trace messages)

A second dial tone indicate that the command was successful. Overflow tone is heard if the command is entered incorrectly. Once this command has been entered, a user entering FITR from the TTY will receive the period (.) prompt.

Some loop-level commands are not valid on Option 11C systems, and have been replaced with slot-level commands.

Calling Line ID on Analog Trunks for Singapone, Australia and Hong Kong

The TRAC program will display the Calling Number for an incoming A-CLID call. Calling Name cannot be displayed.

If the calling number is not received i.e. “P” or “O” received as reason for absence of calling number then the route and member number will be displayed as per the existing functionality.

When to use LD 80

There are three basic commands:

- TRAT for tracing attendant consoles
- TRAC for tracing sets and trunks
- TRAD for tracing calls through Computer PBX Interface (CPI), Digital Trunk Interface (DTI), Primary Rate Interface, or Digital Link Interface (DLI) loops.

The TRAC command can be used to print the tone detector TN if a tone detector is used at the time of the call trace.

Generic software enables the printing of auxiliary data related to a call. The auxiliary data consists of information associated with the NARS/BARS/CDP features, if equipped, and the Ring Again (RGA) feature. This additional data can be retrieved by appending DEV to any of the TRAC commands. Example: TRAC L S C U DEV

Note: BRI DNs can be traced with the TRAC C DN command. For TRAC L S C U, enter U = DSL0 to DSL7 for Digital Subscriber Loops.

When Music and Recorded Announcement Broadcast trunks are traced, the following information is printed out:

- indication that the trunk is broadcasting
- the number of callers connected to the trunk

When a caller connected to a broadcasting trunk is traced, the existing trace information is printed out as well as an indication that the trunk is broadcasting.

Originating and terminating information

The Call Trace originating and terminating party information depends on the types of telephone, console or trunk as shown below.

Single line telephones:

```
ORIG  l s c u   cust  dn 500
TERM l s c u   cust  dn 500
```

Multi-line telephones:

```
ORIG  l s c u    key# keytype   cust   dn settype
TERM l s c u    key# keytype   cust   dn settype
```

Attendant consoles

```
ORIG  l s c u    cust  att#  lpk#    ATTN  consoletype
TERM l s c u    cust  att#  lpk#    ATTN  consoletype
```

Trunks:

```
ORIG  l s c u    rtyp  RMBR  rrr mmm
TERM l s c u    rtyp  RMBR  rrr mmm
```

Where:

l s c u = TN
consoletype = console type (ATT, 1250, 2250)
cust = customer number
dn = directory number
key# = multi-line telephone key number
keytype = multi-line telephone key type (SCR, MCR, HOT, etc.)
lpk# = console loop key number
rrr mm = trunk route and member number
rtyp = trunk route type (TIE, CO, FX, etc.)
settype = multi-line telephone type (SL1, 2008, 2317, etc.)

Example 1
Trace a call placed to a 500-type set

Configuration: active call from key 0 on an M2008, to 500-type telephone
Customer number: 06

Originator:

telephone type: M2008
TN: 004 0 05 00
DN: 5100 on SCR key 0

Terminator:

telephone type: 500
TN: 008 0 03 06
DN: 2121

Trace command:

TRAC 4 0 5 0 (l s **c** u), or
TRAC 6 5100 (customer and DN)

Output:

```
ACTIVE  TN   004  0  05  00

ORIG   04 0  0  05  00    6   SCR 0    5100    2008

TERM  008  0  03   06     6   2121   500
DIAL DN 2121

MAIN PM   ESTD

TALKSLOT  ORIG 22    TERM 22

QUEUE NONE
```

Example 2
Trace an outgoing ISDN call

Configuration: outgoing call from key 0 on an M2317, to 500-type telephone
Customer number: 05

Originator:

telephone type: M2317
TN: 016 0 02 00
DN: 6050 on SCR key 0

Terminator:

Dialed DN: 7873107
Outgoing PRI TIE trunk: loop 018 channel 16; route 24 member 12

Trace command:

TRAC 5 6050 (customer, DN), or
TRAC 16 0 2 0 (l s c u)

Output:

```
ACTIVE  TN   016  0  02  00

ORIG    016  0  02  00     5   SCR 0   6050   2317

TERM     018  16     TIE  RMBR  24  12

DIAL DN  7873107

MAIN PM   ESTD

TALKSLOT  ORIG 13    TERM 13

QUEUE  NONE

---- ISDN PRA CALL (TERM) ----
   CAL REF # = 16
   BEARER CAP = VOICE
   CALL STATE = 10    ACTIVE
   CALLING NO = 4376050
   CALLED NO = 7873107
```

Example 3
Enhanced Trace command output

The enhanced call trace output includes a time stamp that appears on the first line of the output.

The TN or digital trunk prints out only when there has been a change to the call register. The TN or trunk is printed only once.

Sample output:

```
.14:00:02 12/25/1992

KEY 0 MCR MARP ACTIVE TN 001 0 02 01

ORIG 001 02 01 0 SCR MARP 1 5011 SL1

TERM 001 0 02 00 0 MCR MARP 1 5006 SL1

DIAL DN 5006

MAIN_PM ESTD

TALKSLOT ORIG 19 TERM 21

QUEU NONE

KEY 1 TRN IDLE

KEY 2 AO3 IDLE

.
.
.

KEY 8 RND

KEY 9 RLS

.14:00:04 12/25/1992

IDLE TN 015 04
```

Alphabetical list of Call Trace outputs

This section provides definitions of the data output by the various call trace commands.

A time stamp is added to Call Trace output. The following information is added below the time stamp as necessary.

- A digital telephone with no active call register shows:
  IDLE TN l s c u
- A locked out telephone or digital trunk shows:
  LOCKOUT TN l s c u (or l ch)
- A disabled telephone or digital trunk shows:
  DSBL TN l s c u (or l ch)
- A telephone or digital trunk that is in maintenance busy state shows:
  MSBY TN l s c u (or l ch)
  MSBY TN l s c u (or l ch) MARP shows if the TN is a MARP TN

— ACTIVE — the call/key is active

— AUX_NARS — Network Automatic Route Selection (NARS) data to follow

— AUX_PM — auxiliary progress mark may be any of the following depending on the MAIN_PM:

  – ABSORBING = performing digit manipulation on the call
  – AWAIT ANI = waiting for Automatic Number Identification information
  – AWAITREPLY = CPU is waiting for a response during a dial sequence
  – BSYG = busy tone to originator
  – CDR-CALLRECORD = CPU is outputting a CDR record
  – CDR-TIMING = CPU is computing a CDR record
  – COMPLETE = dialing is complete
  – DNTRANS = DN translation to TN in progress
  – FAREND-OFF = ?

- NARS = call is a network call
- NOOUTPULS = outpulsing complete, originator receiving ringback
- OUTPULSING = outpulsing digits related to the call
- OVLF = resources not available, returning overflow to originator
- PAUSING = timed pause in a trunk call dialing sequence
- SPEEDCALL = performing speed call
- TEMPPATH = software timing, occurs when outpulsing digits on trunks
- TOLLCHECK = checking access restrictions for the call
- USCR = User Selectable Call Redirection programming, receiving dial tone
- USCR_DIAL = USCR programming

— AUX_RGAT_PM — Ring Again over trunk information

— BEARER CAP — bearer capability, such as voice, 64K clear, 64K restricted and 56K

— BUSY — unit or DN is busy

— CALL REF # — PRI call reference number assigned by the system

— CALL STATE — specifies the PRI call as active or inactive

— CALLED NO — PRI dialed number

— CALLING N0 — PRI home location code and DN of originating party

— CONF — conference call

— COS_ORIG, COS_TERM — class of service restrictions for originating and terminating party. Possible values are:

- UNR = Unrestricted
- TLD = Toll Denied
- SRE = Semi-restricted
- FRE = Fully Restricted

  - FR1 = Fully Restricted class 1
  - FR2 = Fully Restricted class 2
  - CUN = Conditionally Unrestricted
  - CTD = Conditionally Toll Denied

— CSD — Confree Selectable Display Key

— DARK_CONSOLE — the call is being temporarily released by a console. Also outputs three types of recall:

— RLSED = console released the call is getting recall

— FLASH = Flash recall

— CAMP = Camp-On recall

— DIAL DN— the dialed number

— DIAL xxx yy TTR zz — TDS on loop xxx and timeslot yy connected to Digitone Receiver timeslot zz

— DG_MAN xxx FCA_INDEX xxx TOD x — Digit Manipulation Index, Free Area Screening and Time Of Day value

— DIRECT MW_CALL — Message Waiting indication is being given

— DSBL — the unit has been disabled

— DST — console destination information to follow

— EMR100 — ACD emergency conference

— EXP_ROUTE — identifies if an expensive route is being used for an ESN call

— IDLE — TN or key is idle

— HLD — number of calls On-Hold at the console

— HOLD — call is On-Hold

— LOCKOUT — the unit is in lockout state

— LOOP — attendant console LPK key

— MAIN_PM — this is the main progress mark which identifies the state of the call, possible values are listed below: (See also AUX_PM)

– BUSY = originator is receiving busy tone

– CDR = CPU is processing Call Detail Recording records

– DELAY DIAL = CPU is in a timing sequence while establishing a delay dial start trunk call

– DIAL = one or more digits have been dialed, system requires more digits

– ESTD = call is established between the originating and terminating party

– HALFDISC = Trunk with answer supervision has not received a disconnect signal from the far-end during trunk idling

– READY = CPU is ready to process a function for the originating TN

– REOR = originator is receiving intercept treatment

– RING = originator is receiving ringback tone

– WAIT = dial tone waiting queue

– WINKON = CPU is in a timing sequence while establishing a wink start trunk call

– MARP — indicates the TN is Multiple Appearance Redirection Prime

– MBSY — unit is in maintenance busy state

– NARS_PM — NARS call progress mark

– NEW_RLIST_INDEX NWQ_RLIST_ENTRY — network queue route list index and route list entry

– NCOS_ORIG, NCOS_TERM — Network Class of Service for originating and terminating party

– OHQ/CBQ — call is in the Off-Hook queue or Callback queue

– OSN — On-Site Notification key

– PRIOITY NWQ_EXT_ROUTE — the priority in the queue and extended route queuing

- PTY SLOT — TDS priority timeslot; reserved by the CPU while a user is receiving tones (this timeslot may be required by the CPU to further process the call). Normally PTY SLOT is the same timeslot as SLOT.
- QUEU — a call may be in one of the following CPU timing queues:
- 128 = 128 ms timing queue
  2S = 2 second timing queue
  CAD = cadence
  CDR = Call Detail Recording processing queue
  DIAL = dialing queue
  IDLE = idle queue
  NONE = call is not in a timing queue
  RING = ringing queue
- RCVR xx SET yy — timeslot to the Digitone Receiver (xx) and the telephone (yy)
- RGAT_PM — Ring Again progress mark
- RL_IND xx RL_ENT xx — NARS/BARS route list index and entry number
- SRC — console source information to follow
- SBSY — unit is software busy
- SLOT — the timeslot used by the originator and terminator
- TALKSLOT — identifies the timeslot and junctor (if applicable) used by the originator and terminator
- TDTN — Tone Digit Switch loop and timeslot
- TERM — originating party information, identifies the TN or DN where the call terminates, output depends on type of telephone or console
- TGAR_ORIG, TGAR_TERM — Trunk Group Access Restriction for originating and terminating party
- TTR = Digitone Receiver TN

Basic commands

DALL	Disable all enhanced trace commands.
DIST n	Disable the enhanced trace operation.
ENTC l s c u t	Enable the enhanced trace command for a TN.
ENTD l ch t	Enable the enhanced trace command for a digital trunk.
FITR	Get information about the enhanced trace function.
GOTR	Begin enhanced trace commands. This command starts the trace operation specified with the ENTC and ENTD commands.
STPT	Stop the enhanced trace command.
TRAC c acod	List route number, type and status of each trunk for customer c
TRAC c dn	Trace calls for customer c Directory Number or Local Steering Code dn
TRAC c r m	Trace calls, customer c, route r, member m
TRAC l s c DSLx	Trace calls on Digital Subscriber Loop x (0-7)
TRAC l s c u	Trace calls associated with this unit
TRAC l s c u k	Trace calls associated with key k on specified unit
TRAC x yyyy	Trace using customer number as DN
TRAC xx...xx DEV	Print auxiliary data
TRAC zzzz	Trace using TN of the set to be traced
TRAD loop ch	Trace DTI or DLI calls, channel ch of loop
TRAT c a	Trace calls, attendant a of customer c
TRAT c a k	Trace calls associated with key k of attendant console a for customer c
TRAT l s c u	Trace attendant calls, this unit
TRAT l s c u k	Trace attendant calls on key k
TRAT xx...xx DEV	Print auxiliary data

Option 11C commands

On an Option 11C system, some loop-level commands are replaced with slot-level commands. Valid commands for these systems are shown here:

TRAC c acod	List route number, type and status of each trunk under customer c
TRAC c dn	Trace calls for customer c Directory Number or Local Steering Code dn
TRAC c r m	Trace calls for customer c, route r, member m
TRAD c ch	Trace digital calls, channel ch of card c
TRAD loop ch	Trace DTI calls, channel ch of loop
TRAK c u	Trace calls associated with this unit
TRAK c u k	Trace calls associated with key k on the specified unit
TRAO c u	Trace attendant calls, this unit
TRAO c u k	Trace attendant calls on key k of unit
TRAO xx...xx DEV	Print auxiliary data
TRAT c a	Trace calls for attendant a of customer c
TRAT c a k	Trace calls associated with key k of attendant console a for customer c

Alphabetical list of commands

Command	Description	Pack/Rel
DALL	Disable all enhanced trace commands. This command disables all trace commands enabled with ENTC or ENTD command. You must stop the trace with the STPT command before disabling all the commands with DALL.	basic-19
DIST n	Disable the enhanced trace operation. This command disables the trace command enabled with ENTC or ENTD command. This command is used once a trace command is started then stopped. Where: n = the entry number (as seen with the FITR command)	basic-19
ENTC l s c u t	Enable the enhanced trace command for a TN. This command enables the trace capability for the TN specified. Note that this command does not start the trace immediately. Use the GOTR command to begin the trace operation. Where: l = loop, s = shelf, c = card, u = unit and t = the length of time the trace command operates. The format for the trace command duration (t) is HHMM, where HH = hours (0-23)and MM = minutes (0-59). For example, for a duration of 5 minutes, t = 0005; for 1 hour, t = 0100 The time duration must be at least 1 minute, and no more than 23 hours.	basic-19
ENTD l ch t	Enable the enhanced trace command for a digital trunk. This command enables the trace capability for the TN specified. Note that this command does not start the trace immediately. Use the GOTR command to begin the trace operation. Where: l = loop, s = shelf, c = card, u = unit and t = the length of time the trace command operates. The format for the trace command duration (t) is HHMM, where HH = hours (0-23)and MM = minutes (0-59). For example, for a duration of 5 minutes, t = 0005; for 1 hour, t = 0100. The time duration must be at least 1 minute, and no more than 23 hours.	basic-19

FITR	Get information about the enhanced trace function. This command queries the TNs or Digital trunks being traced with the ENTC and ENTD commands.
	The output is shown as follows:
	`ENTRY TN or TRUNK TIME STATUS`
	For example:
	`1 01 0 01 01 0030 OFF`
	`2 015 04 1200 OFF`
		basic-19

GOTR	Begin enhanced trace commands. This command starts the trace operation specified with the ENTC and ENTD commands.	basic-19
STPT	Stop the enhanced trace command. This command stops the enhanced trace operation specified with the ENTC and ENTD commands. This can be used at any time during the trace operation. This does not disable the commands; they can be restarted with the GOTR command. When they are restarted, the duration timer is reset. For example: the timer is set at 30 minutes, but the trace is stopped after 2 minutes. When the trace is restarted (GOTR) the timer is set to 30 minutes.	basic-19
TRAC c acod	List route number, type and status of each trunk for customer c.	basic-1
TRAC c dn	Trace calls for customer c Directory Number or Local Steering Code dn.	basic-1
TRAC c dn	Trace calls, this dn of customer c.	basic-1
TRAC c r m	Trace calls, customer c, route r, member m.	basic-1
TRAC l s c DSLx	Trace calls on Digital Subscriber Loop x (0-7).	bri-18
TRAC l s c u	Trace calls associated with this unit. If a trace is performed on a DTR, an error message is output.	basic-1
TRAC l s c u k	Trace call associated with key k on specified unit.	basic-1
TRAC x yyyy	Trace using customer number as DN. Where : x = customer number of the set to be traced and yyyy = DN of the key to be traced.	nxcc-22

TRAC xx...xx DEV	Print the auxiliary data related to the call for Network Alternate Route Selection (NARS), Basic Alternate Route Selection (BARS), Coordinated Dialing Plan (CDP) or Ring Again (RGA), where equipped, as well as the normal data for command xx...xx. Command xx...xx can be any of the TRAC commands. When TYP E is output, E = extended route (not expensive).	nxcc-22
TRAC zzzz	Trace using TN of the set to be traced. Where : zzzz = TN of the set to be traced.	nxcc-22
TRAD loop ch	Trace DTI or DLI calls, channel ch of specified loop.	basic-1
TRAD c ch	Trace digital calls, channel ch of card c. (Option 11C)	
TRAK c u	Trace calls associated with this unit. (Option 11C)	basic-1
TRAK c u k	Trace calls associated with key k on the specified unit. (Option 11C)	basic-1
TRAO c u	Trace attendant calls, this unit. (Option 11C)	basic-1
TRAO c u k	Trace attendant calls on key k of unit. (Option 11C)	basic-1
TRAO xx...xx DEV	Print auxiliary data. (Option 11C)	basic-1
TRAT c a	Trace calls for customer c, attendant a.	basic-1
TRAT c a k	Trace calls associated with key k of attendant console a for customer c.	basic-1
TRAT l s c u	Trace attendant calls, this unit.	basic-1
TRAT l s c u k	Trace attendant calls on key k.	basic-1

TRAT xx...xx DEV	Print auxiliary data. Print the auxiliary data related to the call for Network Alternate Route Selection (NARS), Basic Alternate Route Selection (BARS), Coordinated Dialing Plan (CDP) or Ring Again (RGA), where equipped, as well as the normal data for command xx...xx. Command xx...xx can be one of the TRAT commands.	basic-1

LD 92: Automatic Trunk Maintenance

The Automatic Trunk Maintenance (ATM) program tests TIE, CSA, WATS, FEX, DID, and COT trunk routes automatically each day at times scheduled in the ATM schedule block. This program also allows the manual testing of trunks.

Some loop-level commands are not valid on Option 11C systems, and have been replaced with card-level commands.

The ATMC command is not supported for 2.0 Mb/s DTI due to the absence of tone detectors for Option 11C in IPE.

Basic commands

On Option 11C systems, some loop-level commands are replaced with card-level commands.

ATMC l ch	Test DTI channel ch on loop
ATMC l ch l ch	Test specified DTI channel, with reference trunk
ATMR c r	Test customer c route r
ATMR c r m	Test customer c route r with reference trunk member m
ATMU c u	Test specified unit. (Option 11C)
ATMU c u c u	Test specified unit, with reference trunk. (Option 11C)
ATMU l s c u	Test specified unit
ATMU l s c u l s c u	Test specified unit, with reference trunk
CLRR c r	Clear “ring no answer” count on route r for customer c
CLRU c u	Clear “ring no answer” count on specified trunk unit. (Option 11C)
CLRU l s c u	Clear “ring no answer” count on specified trunk unit
CMAJ	Clear major alarm and reset power fail transfer
END	Terminate test in progress
PRTR c r	Get “ring no answer” count for all members on route r for customer c.
PRTU c u	Get “ring no answer” count on specified unit. (Option 11C)
PRTU l s c u	Get “ring no answer” count on specified unit.
PSCD l ch	Print the current value of the SPC Calls to the Data Interface Counter
RSCD l ch (n)	Restart the Semi Permanent Connections (SPC) calls to Data Interface counter
SSCD l ch	Stop the SPC calls to Data Interface to be performed

Alphabetical list of commands

Command	Description	Pack/Rel
ATMC l ch	Test DTI channel ch on loop.	atm-7
ATMC l ch l ch	Test the specified DTI channel (loop and channel of the first field) with the reference trunk (loop and channel of the second field).	atm-7
ATMR c r	Test route r of cu7stomer c. Accepts ADM Route numbers. When an ADM Route is entered, member numbers cannot be entered.	atm-7
ATMR c r m	Test route r of customer c with reference trunk member m.	atm-7
ATMU c u	Test specified unit. (Option 11C)	atm-15
ATMU c u c u	Test specified unit, with reference trunk. (Option 11C)	atm-15
ATMU l s c u	Test specified unit. If the unit specified is an ADM trunk unit, no reference information can be entered.	atm-7
ATMU l s c u l s c u	Test the specified unit (l s c u of the first field) using the reference trunk (l s c u of the second field). If the unit specified is an ADM trunk unit, no reference information (l s c u) can be entered.	atm-7
CLRR c r	Clear “ring no answer” count on route r for customer c. Clears the “ring no answer” count for every trunk member in the ADM Route specified.	atm-7
CLRU c u	Clear “ring no answer” count on specified trunk unit. (Option 11C)	atm-15
CLRU l s c u	Clear “ring no answer” count on specified trunk unit.	atm-7
CMAJ	Clear major alarm, reset power fail transfer and clear power fault alarm.	atm-7
END	Terminate test in progress. This command can be entered at any time.	atm-7

PRTR c r	Get “ring no answer” count for all members on route r for customer c.	atm-7
PRTU c u	Get “ring no answer” count on specified unit. (Option 11C)	atm-15
PRTU l s c u	Get “ring no answer” count on specified unit.	atm-7
PSCD l ch	Print the current value of the SPC Calls to the Data Interface Counter.	ispc-22
RSCD l ch (n)	Restart the Semi Permanent Connections (SPC) calls to Data Interface counter Where: l = Phantom loop of an SPC link and ch = Phantom TN of an SPC link. The RSCD command resets the current counter used to identify the number of calls performed by the system to the Data Interface when an SPC link is configured to convey D-channel signaling and the SPC link is identified as being the SLAVE side. The optional parameter (n) is used to identify the maximum number of calls to the Data Interface before the process automatically stops. When no value has been provided to the parameter (n), up to 40 calls to the Data Interface are performed before this process is automatically stopped. When the value provided to the parameter (n) is zero, it has to stop the process which automatically calls the associated Data Interface.	ispc-22
SSCD l ch	Stop the SPC calls to Data Interface to be performed.	ispc-22

LD 96: D-channel Diagnostic

LD 96 is used to test and maintain D-channel links and the QPC757 or NT6D11AB D-channel Interface (DCHI) card.

D-channels can also reside on Multi-purpose Serial Data Link (MSDL) cards. A set of LD 96 commands are provided to support MSDL cards. The MSDL commands listed in LD 48 can also be used in LD 96.

Monitoring

Selective D-channel message monitoring is used to analyze the Layer 3 protocol messages traveling between the near and far-end D-channels.

- the D-channel
- the B- or ISL channel
- the message types for a specific feature
- any specific message

The following sections describe the various command formats.

Note 1: During high traffic some of the monitored messages may be lost.

Note 2: For the D-channel monitor messages to be displayed, the system terminal must have USER defined as MTC in LD 17.

D-channels

All message types, features and channels associated with a particular D-channel can be monitored for multiple D-channels for both incoming and outgoing messages.

The LD 96 commands to enable or disable monitoring of all incoming or outgoing messages on a D-channel are:

ENL MSGI x—enable monitoring of incoming messages
ENL MSGO x—enable monitoring of outgoing messages
DIS MSGI x—disable monitoring of incoming messages
DIS MSGO x—disable monitoring of outgoing messages

Where x is the DCHI or MSDL port address (I/O address). For example, to enable monitoring of incoming messages on D-channel 5, enter:

ENL MSGI 5

The output includes all messages, features and channels for D-channel 5.

B-channels and ISL channels

You can monitor up to 5 ISL or B-channels, for each direction. If there is no specific channel selected, all channels are monitored. The commands follow:

For B-channels on all systems except Option 11C:

ENL MSGI x CH loop channel
ENL MSGO x CH loop channel
DIS MSGI x CH loop channel
DIS MSGO x CH loop channel

For B-channels on Option 11C systems:

ENL MSGI x CH card channel
ENL MSGO x CH card channel
DIS MSGI x CH card channel
DIS MSGO x CH card channel

For ISL channels on all systems except Option 11C:

ENL MSGI x CH l s c u
ENL MSGO x CH l s c u
DIS MSGI x CH l s c u
DIS MSGO x CH l s c u

For ISL channels on Option 11C systems:

ENL MSGI x CH c u
ENL MSGO x CH c u
DIS MSGI x CH c u
DIS MSGO x CH c u

Where:

ENL = enable monitoring
DIS = disable monitoring
MSGI = incoming messages
MSGO = outgoing messages

ISDN features

You can select specific ISDN applications, such as Network Ring Again, for message monitoring. Only one or all ISDN applications can be monitored per D-channel at one time. The LD 96 commands are listed below, where x is the D-channel (DCHI or MSDL) port number.

ENL MSGI x FEAT feature
ENL MSGO x FEAT feature
DIS MSGI x FEAT feature
DIS MSGO x FEAT feature

Where "feature" can be:

NCT = Network Call Trace
NRAG = Netw\ork Ring Again
NACD = Network Automatic Call Distribution
TRO = Trunk Optimization
NMS = Network Message Services
OHQ = Offhook Queuing
RCFW = Network Remote Call Forward
NRPA = Network Radio Paging
NITC = Network Intercom
TAT = Trunk Anti-Tromboning

Message types

You can select specific types of messages to be monitored on a D-channel. The LD 96 commands are listed below, where **x** is the D-channel (DCHI or MSDL) port number.

ENL MSGI x MSG msg1 msg2 msg3
ENL MSGO x MSG msg1 msg2 msg3
DIS MSGI x MSG msg1 msg2 msg3
DIS MSGO x MSG msg1 msg2 msg3

Up to three message types (msg1, msg2, msg3) can be entered per command. The default is "ALL", which is all message types except SVC and SVCA. The message types are:

- ALER = alerting
- ALL = all primitives and all messages except SVC and SVCA
- CAPR = call proceeding
- CON = connect
- CONA = connect ack
- DISC = disconnect
- FAC = facility
- FACA = facility ack
- FACR = facility reject
- INFO = information
- NOTF = notify
- PRIM = all primitives (such as release indication)
- PROC = call proceeding
- PROG = progress
- RLS = release
- RLSC = release complete
- RST = restart
- RSTA = restart ack

- STAT = status
- STEN = status enquiry
- STP = setup
- STPA = setup ack
- SVC = service
- SVCA = service ack
- UI = user information

Setting output format levels

There are three levels (0-2) of message decoding. The level determines the format of the data output to the system terminal. To set the output level enter the following.

```
SET  MSGI x  MON (0)-2
SET  MSGO x  MON (0)-2
```

Level 0 outputs the message as shown below.

DCH x y MSG msgtype REF xxxxxxx CH zzzz TOD hh:mm:ss <more data>

Where:

x = D-channel number
y = "I" for incoming messages, "O" for outgoing messages
xxxxxxxx = the call reference number
zzzz = the loop and channel number (or TN for ISL channels)

- <more data> = additional lines of information, such as:
- CALLED # = called number
- CALLING # = calling number of originator
- CAUSE = reason for action taken (e.g, unassigned number)
- CONNECT # = connected number
- FEAT = feature (such as Network Ring Again)
- NUM PLAN = Numbering plan used (such as private)
- PROGRESS = call progress description

- REDIR REASON = reason the call was re-directed
- REDN # = call redirection number
- STATE = call state
- STATUS = channel status
- TYPE = type of channel

Level 1 outputs the raw data.

The format is:

DCH x y MSG msgtype REF xxxxxxxx TN zzzzzz CH# x CK x
<more data in hexadecimal>

Level 2 output identifies the individual Information Elements (IE) in the messages and their hexadecimal values. The possible IEs are:

- BCAP = bearer capability
- CAST = call state
- CHGA = charge advice
- CHID = channel ID
- CHST = change status
- CLED = called number
- CLES = called party subaddress
- CLNG = calling number
- CLNS = calling party subaddress
- CNS5 = codeset 5 connected number subaddress
- CON# = connect number
- CON5 = codeset 5 connected number
- CSE = cause
- DES6 = codeset 6 Destination IE
- DISP = display

- FAC = facility IE for codeset 0
- FAC6 = codeset 6 facility IE
- FIND = feature Indication
- HLYR = higher layer compatibility
- INFO = information request
- KYPD = keypad
- LLYR = low layer compatibility
- LS5 = locking Shift to codeset 5
- LS6 = locking shift to codeset 6
- LS7 = locking Shift to codeset 7
- NLS5 = codeset 5 non-locking shift
- NLS6 = codeset 6 non-locking shift
- NLSO = non-locking shift to codeset 0
- NOTI = notify indicator
- NSF = network specific facility
- ORG# = originating called number
- ORG6 = codeset 6 Originating IE
- PROG = progress indicator
- RDG6 = codeset 6 redirecting number
- REDG = redirecting number
- REDN = redirection number
- RETR = codeset 6 reason for return
- RSTI = restart indicator
- SHFT = shift
- SIGN = signal
- TACG = codeset 6 TTC advice charge
- TNS = transit network selection

- UNKN = unknown
- UUI = user-user information

Deactivate monitor from a maintenance telephone

Once the system has been tied up or flooded with the monitored messages, it is very difficult, if not impossible, to use LD 96 to disable the monitors. In this case, a maintenance telephone with MTA Class of Service can be used to deactivate the monitor.

To activate or deactivate the monitor from a maintenance telephone, simply dial: SPRE 9913 x 01

Where:

SPRE = special function access code (defined in LD 15)
9913 = feature code to activate or deactivate the monitor
x = 0 to deactivate, 1 to activate
01 = DCH monitor ID

Note 1: Dial tone is provided if successful.

Note 2: Use "RST MON" to reactivate the monitor from LD 96.

Note 3: Deactivating the monitor by the maintenance telephone does not disable the monitor, but simply halts the output. If the monitor is deactivated and not disabled using the DIS MSGI and DIS MSGO commands, then the monitor becomes re-activated after a datadump and sysload.

Get monitor status

To determine the current status of the D-channel monitor, enter the following command, where x is the D-channel (DCHI or MSDL) port number.

STAT MON x

Output format:

***DCH MSGI x LEVEL y ACTV (where, y = format level)
MSG - msg1 msg2. . .
FEAT - feat
CH - loop channel (or l s c u for ISL)

```
***DCH MSGO x LEVEL y ACTV
   MSG - msg1 msg2. . .
   FEAT - feat
   CH - loop channel (or l s c u for ISL)
```

If the monitor had been deactivated by the maintenance telephone, INACTV is output instead of ACTV.

Multi-purpose Serial Data Link (MSDL)

The MSDL provides 4 ports for ISDN Primary Rate D-channel (DCH) and Application Module Link (AML).

The MSDL commands are listed below, x is the MSDL device number (defined by prompt DNUM in LD 17).

DIS MSDL x (ALL)—Disable MSDL device
ENL MSDL x (FDL, ALL)—Enable MSDL device
RST MSDL x—Reset MSDL device
STAT MSDL (x) (FULL)—Get MSDL status
SLFT MSDL x—Execute a self-test on MSDL device x

These commands are also provided in Input/Output Diagnostic (LD 37) and Link Diagnostic (LD 48).

D-channel Expansion

With the introduction of D-channel Expansion, new software allows the increase of D-channels past sixty-four. Instead of the Meridian 1 system having a maximum of 16 I/O addresses, the new software allows 16 physical I/O addresses (0 - 15) per network group for D-channels defined on MSDL. With this enhancement a response to the system response GROUP is required to inform the system of the desired network group.

Note: See “D-channel Expansion commands” for a complete description of these commands.

D-channel commands

The following commands are used to enable, disable, test and get the status of a D-channel. Refer to the LD 96 introduction for details on the use of these commands.

DIS AUTO x	Disable automatic recovery for DCH x
DIS DCH x	Disable DCH x
DIS MSGI x (options)	Disable the monitoring of incoming messages on D-channel x
DIS MSGI x FEAT CPNW	Disable incoming monitoring for the Network CPNW ISDN messages on D Channel x.
DIS MSGO x (options)	Disable the monitoring of outgoing messages on D-channel x
DIS MSGO x FEAT CPNW	Disable outgoing monitoring for the Network CPNW ISDN messages on D Channel x.
DIS SERV x	Disable service messages on D-channel x
DIS TMDI x (ALL)	Disable TMDI card x
DLIF DCH x	Force download of D channel x (For PRI UIPE application)
ENL AUTO x	Enable automatic recovery for DCH x
ENL DCH x (FDL)	Enable DCH x and attempt to establish the link, and force download to MSDL
ENL MSGI x (options)	Enable the monitoring of incoming messages on D-channel x
ENL MSGI x FEAT CPNW	Enable incoming monitoring for the Network CPNW ISDN messages on D Channel x.
ENL MSGO x (options)	Enable the monitoring of outgoing messages on D-channel x
ENL MSGO x FEAT CPNW	Enable outgoing monitoring for the Network CPNW ISDN messages on D Channel x.
ENL SERV x	Enable service messages on D-channel x
ENL TMDI x	Enable TMDI card number x
ENL TMDI x (FDL, ALL)	Enable TMDI Card number x and force a download
EST DCH x	Establish multiple frame operation on D-channel x
EST ISPC l ch (N)	Start the data interface establishment process at the ISPC slave side an ISPC link (where “N” = the “number of tries” counter)
FDIS NCAL <DCH#> <conn_ID>	Force disconnect the specified call-independent connection
PLOG DCH x	Print protocol error log on DCH x
RLS DCH x	Release D-channel x
RLS ISPC l ch	Stop the data interface establishment process
RST DCH x	Reset D-channel x, inhibit signaling
RST MON	Reset or reactivate monitoring on D-channels with enabled monitors

RST TMDI x	Reset TMDI card x
SDCH DCH x	Switch to the standby D-channel x
SET MSGI x MON (0)-2	Set monitor output format level for incoming messages on D-channel x
SET MSGO x MON (0)-2	Set monitor output format level for outgoing messages on D-channel x
SLFT TMDI x	Invoke self test x
STAT DCH (x)	Get status of one or all D-channels
STAT ISPC l ch	Get status of data interface establishment process at ISPC slave side ISPC link which has been configured to convey D-channel signaling
STAT NCAL <DCH#>	List all current call-independent connections on a given PRI D-channel.
STAT NCAL <DCH#> <conn_ID>	List information pertaining to a specific call-independent connection
STAT MON (x)	Display the incoming and outgoing monitoring status of one or all D-channels.
STAT SERV (x)	Get the enable/disable status of services messages for one or all D-channels
STAT TMDI (x FULL)	Get TMDI status x
TEST 100 x	Perform interrupt generation test on DCH x
TEST 101 x	Perform loop back mode test on DCH x
TEST 200 x	Perform interrupt handler test on DCH x (not supported on Option 11C)
TEST 201 x	Test interrupt handler-to-link interface path (not supported on Option 11C)

D-channel Expansion commands

Commands	System Response	Description
STAT MSDL	GROUP	Display status of all MSDL cards in the system. Where: If the answer to the GRP prompt is <cr>, then the status of all MSDL cards is printed. If the answer to the GRP prompt is g, then the status of all MSDL cards occupying the g network group is printed.
STAT MSDL n	GROUP	Display status of the given MSDL card as known to the SL1. Where: If the answer to the GRP prompt is <cr>, then the status of the MSDL cards occupying the physical I/O address n in all the network groups is printed. If the answer to the GRP prompt is g, then the status of the MSDL card occupying the physical I/O address n in network group g is printed.
STAT MSDL n full	GROUP	Display status of the given MSDL card as known to the SL1 and available in the shared RAM of the MSDL card. Where: If the answer to the GRP prompt is <cr>, then the status of the MSDL cards occupying the physical I/O address n in all the network groups is printed. If the answer to the GRP prompt is g, then the status of the MSDL card occupying the physical I/O address n in network group g is printed.
ENL MSDL n	GROUP	Enable the given MSDL card. Where: If the answer to the GRP prompt is g, then the MSDL card occupying the physical I/O address n in network group g is enabled.

ENL MSDL n all	GROUP	Enable MSDL card n and all configured ports. Where: If the answer to the GRP prompt is g, then the MSDL card occupying the physical I/O address n in network group g is enabled.
ENL MSDL n FDL	GROUP	Force download all the required Loadware to the MSDL card and enable the MSDL card. Where: If the answer to the GRP prompt is g, then the MSDL card occupying the physical I/O address n in network group g is enabled.
DIS MSDL n all	GROUP	Disable the given MSDL card. All the configured ports should be in the disable state, otherwise the MSDL card can not be disabled. Where: If the answer to the GRP prompt is g, then the MSDL card occupying the physical I/O address n in network group g is disabled.
DIS MSDL n ALL	GROUP	Disable all ports of the MSDL card, and then disable the MSDL card. Where: If the answer to the GRP prompt is g, then the MSDL card occupying the physical I/O address n in network group g is disabled.
RST MSDL n	GROUP	This command causes a power-on reset on the MSDL card. Where: If the answer to the GRP prompt is g, then the MSDL card occupying the physical I/O address n in network group g is reset.

SLFT MSDL n	GROUP	Power-on reset on the MSDL card, followed by a complete set of self tests. Where: If the answer to the GRP prompt is g, then the MSDL card occupying the physical I/O address n in network group g is tested.
ENL MSDL n DBG	GROUP	Enable the debugger option for the MSDL card. Where: If the answer to the GRP prompt is g, then the debugger option for the MSDL card occupying the physical I/O address n in network group g is enabled.
ENL MSDL n MSGO	GROUP	Enable the outgoing message monitor option for the MSDL card. Where: If the answer to the GRP prompt is g, then the outgoing message monitor option for the MSDL card occupying the physical I/O address n in network group g is enabled.
ENL MSDL n MSGI	GROUP	Enable the incoming message monitor option for the MSDL card. Where: If the answer to the GRP prompt is g, then the incoming message monitor option for the MSDL card occupying the physical I/O address n in network group g is enabled.
ENL MSDL n AUDM	GROUP	Enable the msdl auditing for the MSDL card. Where: If the answer to the GRP prompt is g, then the msdl auditing for the MSDL card occupying the physical I/O address n in network group g is enabled.

ENL MSDL n FCTL

GROUP — Enable flow control for the MSDL card.

Where:

If the answer to the GRP prompt is g, then the flow control option for the MSDL card occupying the physical I/O address n in network group g is enabled.

DIS MSDL n DBG

GROUP — Disable the debugger option for the MSDL card.

Where:

If the answer to the GRP prompt is g, then the debugger option for the MSDL card occupying the physical I/O address n in network group g is disabled.

DIS MSDL n MSGO

GROUP — Disable the outgoing message monitor option for the MSDL card.

Where:

If the answer to the GRP prompt is g, then the outgoing message monitor option for the MSDL card occupying the physical I/O address n in network group g is disabled.

DIS MSDL n MSGI

GROUP — Disable the incoming message monitor option for the MSDL card.

Where:

If the answer to the GRP prompt is g, then the incoming message monitor option for the MSDL card occupying the physical I/O address n in network group g is disabled.

DIS MSDL n AUDM

GROUP — Disable the msdl auditing for the MSDL card.

Where:

If the answer to the GRP prompt is g, then the msdl auditing of the MSDL card occupying the physical I/O address n in network group g is disabled.

DIS MSDL n FCTL

GROUP — Disable the flow control for the MSDL card.

Where:

If the answer to the GRP prompt is g, then the flow control option for the MSDL card occupying the physical I/O address n in network group g is disabled.

STAT MSDL n MON

GROUP — Display the current message monitoring and debug option for the given MSDL card.

Where:

If the answer to the GRP prompt is g, then the current message monitoring and debug option for the MSDL card occupying the physical I/O address n in network group g is displayed.

Multipurpose Serial Data Link (MSDL) commands

The MSDL commands are listed below, **x** is the MSDL device number (defined by prompt DNUM in LD 17). These commands are also provided in Input/Output Diagnostic (LD 37) and Link Diagnostic (LD 48).

DIS MSDL x (ALL)	Disable MSDL device x
ENL MSDL x (ALL, FDL)	Enable MSDL device x
RST MSDL x	Reset MSDL device x
SLFT MSDL x	Invoke self-test for MSDL device x
STAT MSDL (x [FULL])	Get MSDL status

Note: See "Alphabetical List of commands" in LD 48 for a complete description of these commands.

Multipurpose Serial Data Link D-channel commands

The following commands are only available for D-channels on an MSDL port.

DIS LLB x	Disable local loop back mode on MSDL DCH x
DIS RLB x	Disable remote loop back mode on MSDL DCH x
DIS TEST x	Disable TEST mode on MSDL DCH x
DLIF DCH xx FDL	Force download a PRI interface table.
ENL LLB x	Enable local loop back mode on MSDL DCH x
ENL RLB x	Enable remote loop back mode on MSDL DCH x
ENL TEST x	Enable TEST mode on MSDL DCH x
MAP DCH x	Get physical address and switch settings for D-channels
PCON DCH x	Print configuration parameters on MSDL DCH x
PMES DCH x	Print incoming layer 3 messages on MSDL DCH x
PTRF DCH x	Print traffic report on MSDL DCH x
PTRF DCH x	Print traffic report on MSDL DCH x
TEST LLB x	Start local loop back test on MSDL DCH x
TEST RLB x	Start remote loop back test on MSDL DCH x

Alphabetical list of commands

Command	Description	Pack/Rel
DIS AUTO x	Disable automatic recovery for DCH x	pra-13
DIS DCH x	Disable DCH x. This changes the status of the DCH to DSBL and the status of the D-channel to DCH RST (reset).	pra-18
DIS LLB x	Disable local loop back mode on MSDL DCH x. See "ENL TEST" command for details.	msdl-18
DIS MSGI x (options)	Disable the monitoring of all incoming messages from D-channel x. The available options are: 1. `CH loop channel`: disable incoming messages on B-channel loop channel (non-Option 11C systems) 2. `CH card channel` : disable incoming messages on B-channel card channel (Option 11C systems) 3. `CH l s c u`: disable incoming messages on ISL-channel loop shelf card unit (non-Option 11C systems) 4. `CH c u` : disable incoming messages on ISL-channel card unit (Option 11C systems) 5. `FEAT feature`: disable incoming messages for a PRI feature 6. `MSG msg1 msg2 msg3`: disable incoming message types Refer to the LD 96 introduction for details.	pra-17
DIS MSGI x FEAT CPNW	Disable incoming monitoring for the Network CPNW ISDN messages on D Channel x.	basic-21
DIS MSGO x (options)	Disable the monitoring of outgoing messages from D-channel x. Refer to DIS MSGI x (options) for the list of options.	pra-17
DIS MSGO x FEAT CPNW	Disable outgoing monitoring for the Network CPNW ISDN messages on D Channel x.	basic-21

DIS RLB x	Disable remote loop back mode on MSDL DCH x. See “ENL TEST” command for details.	msdl-18
DIS SERV x	Disable service messages on D-channel x. See “ENL SERV” for details. The D-channel must be disabled before disabling service messages.	pra-15
DIS TEST x	Disable TEST mode on MSDL DCH x. See “ENL TEST” command for details. When the test mode state is disabled, the DCH link will go back to release state and the DCH background audit will then try to establish the link.	msdl-18
DIS TMDI x (ALL)	Disable TMDI card x	basic-24
DLIF DCH x	Force download of D channel x (For PRI UIPE application). Note that : 1. D channel specified must use the UIPE application 2. D channel must be disabled 3. D channels configured on the same MSDL card using the same interface must be disabled	uipe-20
DLIF DCH xx FDL	Force download a PRI interface table. To download the ISDN interface cable: 1. the D channel must be disabled 2. the UIPE application must be active 3. other D channels on the same MSDL card must be disabled	qsig-22
ENL AUTO x	Enable automatic recovery for DCH x. Automatic recovery is initially enabled.	pra-13
ENL DCH x (FDL)		

	Enable DCH x and attempt to establish the link, and force download to MSDL. A self-test on the DCH runs automatically. If successful, then: • DCHI status: OPER • DCH status: EST If this is not successful, then: • DCHI status: OPER • DCH status: RLS FDL forces D-channel loadware to the MSDL card. This is optional.	msdl-18
ENL LLB x	Enable local loop back mode on MSDL DCH x. See "ENL TEST" command for details.	msdl-18
ENL MSGI x	Enable the monitoring of all incoming messages from D-channel x.	pra-13
ENL MSGI x (options)	Enable the monitoring of all incoming messages from D-channel x. Refer to DIS MSGI x (options) for the list of options.	pra-17
ENL MSGI x FEAT CPNW	Enable incoming monitoring for the Network CPNW ISDN messages on D Channel x.	basic-21
ENL MSGO x (options)	Enable the monitoring of all outgoing messages for D-channel x. Refer to DIS MSGI x (options) for the list of options.	pra-17
ENL MSGO x FEAT CPNW	Enable outgoing monitoring for the Network CPNW ISDN messages on D Channel x.	basic-21
ENL RLB x	Enable remote loop back mode on MSDL DCH x. See "ENL TEST" command for details.	msdl-18

ENL SERV x	Enable service messages on D-channel x. "Service" and "Service Acknowledge" messages are supported on individual PRA B channels, ISL channels and D-channels. They are used to coordinate channel status between the near and far end. A channel status can be in service, maintenance or out-of-service. The primary and backup D-channel must be disabled before enabling service messages. Make sure both ends support service messages before using this command. By default, SERV is disabled when the interface type is Meridian 1/Meridian SL-1 (LD 17 IFC = SL1). When enabled, service messages are supported on individual PRA B-channels, ISL channels and D-channels. When disabled, service messages are provided automatically on D-channels with Backup D-channel configured. For Meridian 1/Meridian SL-1 to DMS, or Meridian 1/Meridian SL-1 to AT&T only service messages on individual PRA B-channels and ISL channels are supported. By default, SERV is disabled when the interface type is DMS (LD 17), and enabled when the interface type is AT&T (LD 17 IFC = ESS4/ESS5).	pra-15
ENL SSM x y	Enable Supplementary Service Monitor for feature y on D-channel x, where: y = 3 for Network Attendant Service. All other entries are reserved for future use Output format is as follows: Standard ISDN message monitor output format appended with four fields. Where: • Field 1 = Customer number • Field 2 = Indicator of whether the message is one that was decoded at a "tandem" node • Field 3 = Descriptive string about a specified item • Field 4 = Numeric information about specified item	nas-18

Examples of the four fields follow:

```
--> 002 T-ACCESS TRKINFO
--> 002 T-PRIVATE TRUNK
--> 002 T-TIE TRUNK
--> 002 T-TANDEM COUNT (000001)
```

ENL TEST x — Enable TEST mode on MSDL DCH x. — msdl-18

The DCH is put into TEST mode to perform the local loop back (LLB) or remote loop back (RLB) test. The DCH link can only be put in test mode if it is in the release or established state. If the link is in establish state, the DCH link is first released, and then put in test mode.

The local loop back test first tests the expedited interface, then the ring interface. The test consists of sending a data packet through each interface, which in turn is sent back by Layer 2. This data packet is then validated to ensure that the contents of the data packet are the same that were originally sent.

Example:

- ENL TEST x enter TEST mode
- ENL LLB x enter local loop back mode
- TEST LLB x perform test (results are PASS or FAIL)
- DIS LLB x exit local loop back mode
- DIS TEST x exit TEST mode and restore link

The remote loopback test is used to verify the integrity of the physical link. To run the test the far-end must be in the remote loopback mode (ENL RLB x). The DCH running the test (near-end) must be in TEST mode.

Example:

Far-end:

ENL TEST x — enter TEST mode
ENL RLB x — enter remote loopback mode
DIS RLB x — exit remote loopback mode (after test)
DIS TEST x — exit TEST mode and restore link

Near-end:

ENL TEST x — enter TEST mode
TEST RLB x — perform test (results are PASS or FAIL)
DIS TEST x — exit TEST mode and restore link

If the far end is not an MSDL D-channel, use the RLBK command in LD60 to set up the remote loopback test.

ENL TMDI x — Enable TMDI card number x — basic-24

ENL TMDI x ALL — basic-24
Enable all units on TMDI card number x

ENL TMDI x FDL — basic-24
Enable TMDI Card number x and force a download

EST DCH x — Establish multiple frame operation on D-channel x. — pra-13

With the absence of the back-up D channel, issuing the EST DCH x command clears all the B-channels on loop x. If backup D-channel is available, the system switches to the backup D-channel and the B-channels of loop x are not cleared.

EST ISPC l ch (N) — ispc-22

Establish data interface process at the ISPC SLAVE side of an ISPC link at loop (l) and channel (ch), where "N" = the "number of tries" counter. The range for N = 0-(1)-255.

When N = 0, the mode is set to AUTOMATIC. This mode requires one TDS slot and one DTR unit. This mode is not recommended for use on small systems or systems loaded with heavy traffic.

When N > 0, the process is activated for a period of up to N * 30 minutes. The available range goes from 30 minutes (N = 1) to 128.5 hours or 5 days (N = 255).

If no value is entered for N, it defaults to a value of 1. When N = 1, one attempt will be made to establish the data interface process before the ISPC slave D-channel is released.

FDIS NCAL <DCH#> <conn_id> — qsig gf-22

Force disconnect the specified call-independent connection as defined by its connection ID number. The connection ID number is a number in the range of 1-9999 that identifies the call independent connection on a given DCH.

MAP DCH x — Get physical address and switch settings for D-channels. This command outputs the card name and switch settings for D-channels. For example: — msdl-18

```
MAP DCH
DCH 15  DCHI 07
DCH 23  MSDL 09 PORT 2
```

PCON DCH x — Print configuration parameters on MSDL DCH x. This command outputs the parameters originally downloaded when the D-channel was enabled. The output format is: — msdl-18

```
DCH : x   LINK PARAM CONFIRM TIME: hh:mm:ss
```

- MSDL x = 0-15
- PORT x = 0-3
- INTERFACE aaa = SL1, D100, D250, ESS4, S100, etc.
- OPER MODE aaa bbb ccc ddd eee

Where: aaa = RS422, RS232 ; bbb = DTE, DCE ; ccc = USR, NET ; ddd = baud rate ; eee = clock (EXT or INT CLK)

T200 xx (LAPD parameter)
T203 xx (LAPD parameter)
T200 xx (LAPD parameter)
N201 xx (LAPD parameter)
K xx (LAPD parameter)
N2X4 xx (LAPD parameter if INTERFACE is ITR6)

PLOG DCH x — Print protocol error log-on DCH x. — pra-18

Protocol errors can be the result of PRI transmission problems and re-start procedures, or a protocol mismatch with the far end. The PLOG counters are cleared after the PLOG is printed or the DCH card is enabled.

When a protocol counter overflows, the PLOG is printed automatically and the counters are cleared. The counter is also cleared when the D-channel is disabled.

Response is:

```
DCH : xx MAINT CONFIRM   TIME: hh:mm:ss
01   cc
11   cc
23   cc
```

Where:

- x = DCH number
- xxxx = system real time (in hexadecimal)
- yy = maintenance indication primitive
- zz = maintenance indication task ID
- 01 02 03...16 = protocol error counters as listed below
- cc = protocol error counts

Only the non-zero counters are output. Protocol error counters:

- 01 = Count of missing PRI handshakes
- 02 = Count of peer initiated re-establishment link
- 03 = Count of unsuccessful retransmit N200 of SABME
- 04 = Count of unsuccessful retransmit N200 of DISC
- 05 = Count of N(R) errors
- 06 = Count of I fields with length greater than N201
- 07 = Count of undefined frames
- 08 = Count of I fields but not allowed
- 09 = Count of FRMR frames
- 10 = Count of CRC error frames
- 11 = Count of REJ frames
- 12 = Count of messages with less than 4 octets
- 13 = Count of undefined protocol discriminators
- 14 = Count of undefined message types
- 15 = Count of messages missing mandatory information elements
- 16 = Count of messages with undefined information elements
- 17 = Count of layer 1 reports of no external clock being received
- 18 = Count of aborted frames
- 19 = Count of SABME frames received with incorrect C/R bit
- 20 = Count of supervisory frames received with F = 1
- 21 = Count of unsolicited DM responses with F = 1
- 22 = Count of unsolicited UA responses with F = 1
- 23 = Count of unsolicited UA responses with F = 0
- 24 = Count of DM responses with F = 0
- 25 = Number of times that no response was received from the far end after N200 retransmissions of RR or RNR
- 26 = Count of frames received with incorrect header length
- 27 = Number of times owner receiver busy condition was entered
- 28 = Number of times peer receiver busy condition was entered
- 29 = Count of messages with call reference length greater than 2

- 30 = Count of optional IEs received with invalid contents
- 31 = Count of mandatory IEs received with invalid contents
- 32 = Count of messages received with IE's not ordered correctly
- 33 = Count of IEs which were repeated in received messages, but are only allowed to appear once per message
- 34 = Count of IEs received with length exceeding the specified maximum length for the IE
- 35 = Count of layer 3 messages from far-end with invalid call reference flag value of 0.
- 36 = Count of layer 3 messages from far-end with invalid call reference flag value of 1.
- 37 = Count of layer 3 messages from far-end with invalid global call reference.
- 38 = Count of layer 3 messages from SL-1 that are too short.
- 39 = Count of layer 3 messages from SL-1 containing an undefined message type.
- 40 = Count of layer 3 messages from SL-1 missing mandatory IE(s).
- 41 = Count of layer 3 messages from SL-1 containing unsupported IE(s).
- 42 = Count of layer 3 messages from SL-1 containing invalid operational IE(s).
- 43 = Count of layer 3 messages from SL-1 containing invalid mandatory IE(s).
- 44 = Count of layer 3 messages from SL-1 with IE(s) out of order.
- 45 = Count of layer 3 messages from SL-1 containing repeated IE(s).
- 46 = Count of layer 3 messages from far-end with an invalid call reference length.
- 47 = Count of layer 3 messages from SL-1 with an invalid call reference flag value of 0.
- 48 = Count of layer 3 messages from SL-1 with an invalid call reference flag value of 1.
- 49 = Count of layer 3 messages from SL-1 with an invalid global call reference.
- 50 = Count of unexpected layer 3 messages received from the far-end.
- 51 = Count of unexpected layer 3 messages received from the SL-1.

- 52 = Count of unexpected layer 3 timer expirations.
- 53 = Count of protocol messages received when D-channel is not in service or waiting for a Service Acknowledge message.

PMES DCH x — Print incoming layer 3 messages on MSDL DCH x. — msdl-18

The following data is kept by the MSDL DCH loadware and output when requested by this command or when one of the counters overflows:

```
DCH : xx
MSG LOG CONFIRM TIME: hh:mm:ss
SETUP:        yy
CONNECT:      yy
ALERT:        yy
```

(Only non-zero counters are reported) (Where yy is the number of times a message was received)

When a counter overflows, the log is printed automatically and the counters are cleared. The counter is also cleared when the D-channel is disabled.

PTRF DCH x — Print traffic report on MSDL DCH x. — msdl-18

The following traffic information is output:

1. `PEAK_I_US xx %` = peak incoming usage on the DCH link
2. `AVRG_I_US xx %` = average incoming usage on the DCH link
3. `PEAK_O_US xx %` = peak outgoing usage on the DCH link
4. `AVRG_O_US xx %` = average outgoing usage on the DCH link
5. `TIME xx` = time in seconds
6. `CONNECTED CALLS xx`: = total number of established call-independent connections

RLS DCH x	Release D-channel x. The link is in a waiting state, ready to come back up at any time. If you release the D-channel with active B-channels, then calls in progress are not affected. However, these calls are disconnected when you re-establish the D-channel. When the automatic recovery feature is active, the B-channels are automatically re-established	pra-13
RLS ISPC l ch	Stop the data interface establishment process. When this command is entered, the mode becomes MANUAL and the number of attempts to be performed = 0.	ispc-22
RST DCH x	Reset D-channel x, inhibit signaling. Forces the link to reset (RST) state, but does not disable PRI or DCH	pra-13
RST MON	Reset or reactivate monitoring on D-channels with enabled monitors.	pra-17
RST TMDI x	Reset TMDI card x	basic-24
SDCH DCH x	Switch to the standby D-channel x. This is only valid in a backup D-channel configuration. Releases a D-channel and switches over to the other D-channel as long as the other D-channel is in EST STBY, established standby mode. Where x is the standby D-channel number. This command changes the status of the active D-channel to standby, and changes the status of standby D-channel to active. This command is not applicable if the recovery to primary D-channel option (prompt RCVP = YES in LD 17) is used. This command is only applicable to Meridian 1/Meridian SL-1 to Meridian 1/Meridian SL-1 Backup D-channel interface (IFC = SL-1 in LD 17).	pra-13
SET MSGI x MON (0)-2	Set monitor output format level for all incoming messages on D-channel x. Refer to Setting output format levels earlier in the section.	pra-17
SET MSGO x MON (0) -2	Set monitor output format level for all outgoing messages on D-channel x. Refer to Setting output format levels earlier in the section.	pra-17

SLFT TMDI x	Invoke self test on TMDI card x	basic-24
STAT DCH x	Get the present status of D-channel x, where x is the I/O port number (entering x to specify just one link is optional). DCH status may be: • EST = DCH link is established • EST STBY = DCH link is established and is the standby • FAIL = DCH link has failed • RLS = DCH link is released • RST = DCH link is in reset state • AEST, ARLS, REST = these codes indicate intermediate background functions are being performed. Enter the STAT command again to determine final status.	pra-13
STAT DCH (x)	Get status of one or all D-channels. If a DCH number is not entered, the status of all D-channels is output. The output format is: DCH x : aaaa bbbb cccc dddd x Where: • x = DCH number • aaaa = application status • bbbb = link status • cccc = AUTO if autorecovery is enable • dddd = BKUP x or PRIM x (associated primary or backup DCH) Application status (aaaa): • APRI = Awaiting PRI response • CPRI = Checking PRI • DIAG = application has failed • DSBL = application is disabled • OPER = link is operational • RST = application is in reset state • SDCH = Setting D-channel	pra-18

Link status (bbbb):

- AEST = Awaiting establishment
- ARLS = Awaiting release
- EST ACTV = DCH link is established and active
- EST STBY = DCH link is established and is the standby
- FAIL = DCH link has failed
- REST = request establishment
- RLS = DCH link is released
- RST = DCH link is in reset state
- TST = Test mode

STAT DCHI (x) — Get the present status of DCHI x (entering x to specify just one card, is optional). DCHI status may be: — pra-13

1. DSBL = DCHI hardware is disabled.
2. DIAG = DCHI hardware has failed.
3. OPER = DCHI hardware is operational.
4. RST = DCHI is in reset state.
5. PRI, CPRI, SDCH = these codes indicate intermediate background functions are being performed. Enter the STAT DCHI command again to determine final status.

STAT ISPC l ch — Get status of data interface establishment process at an ISPC SLAVE side of an ISPC link (where l = loop and ch = channel) which is configured to convey D-channel signaling. — ispc-22

The status may be:

1. DISABLED = ISPC link is disabled
2. AWAITING ESTABLISHMENT = the data interface establishment process is waiting to receive DTMF digits. While waiting, dial tone is provided to the ISPC link at the SLAVE side.
3. RELEASED = the data interface establishment process is stopped because either an “RLS ISPC” command has been entered or because the maximum number of tries has been reached.
4. ESTABLISHED = data interfaces at both ends of the ISPC link are established.
5. AWAITING RELEASE = the ISPC link is being disconnected. Once disconnected, the link will transition to the “RELEASED” state.

The mode may be:

1. MODE MANUAL N = the data interface establishment process is running with up to “N” number of tries
2. MODE AUTOMATIC = the Meridian 1 provides dial tone to the ISPC slave D-channel.

STAT MON (x) Display the incoming and outgoing monitoring status of one or all D-channels. pra-13

STAT NCAL <DCH#> qsig gf-22

List all current call-independent connections on a given PRI D-channel.

The response format is as follows:

- NCAL CONN_ID: The connection ID number is a number in the range of 1-9999 that identifies the call independent connection on a given DCH.
- CREF: call reference number in HEX identifying independent connection
- STATE: current state of all call-independent connections (IDLE, CONN_REQ, CONN_EST)
- TIME: year month day hour:minute:second (the time when call independent connection request is made)
- APPL: applications using the call-independent connection (eg. NACD, NMS, ...)
- ORIG: originator
- DEST: destination

STAT NCAL <DCH#> <conn_ID> qsig gf-22

List information pertaining to a specific call-independent connection as defined by its connection ID number.

The response format is as follows:

- NCAL CONN_ID: The connection ID number is a number in the range of 1-9999 that identifies the call independent connection on a given DCH.
- CREF: call reference number in HEX identifying independent connection
- STATE: current state of all call-independent connections (IDLE, CONN_REQ, CONN_EST)
- TIME: year month day hour:minute:second (the time when call independent connection request is made)
- APPL: applications using the call-independent connection (eg. NACD, NMS, ...)
- ORIG: originator
- DEST: destination

STAT SERV (x) Get the enable/disable status of services messages for one or all D-channels. See “ENL SERV” for details. pra-15

STAT TMDI x Get TMDI status on card x basic-24

STAT TMDI x FULL basic-24

Get TMDI status and all corresponding units.

TEST 100 x Perform interrupt generation test on DCHI x. This is an isolated hardware test. If this test fails, either a faulty DCHI card or a contention problem is indicated. pra-13

Tests 100, 101, 200, and 201 must be run in sequential order. Established calls will stay up, but new calls cannot be placed. The DCH link must be in the reset (RST) state when these tests are run. Reset (RST) can be established when the status of the D-channel is established (EST) or released (RLS).

TEST 101 x Perform loop back mode test on DCHI x. This is an isolated hardware test. If this test fails, either a faulty DCHI card or a contention problem is indicated. pra-13

TEST 200 x Perform interrupt handler test on DCHI x. This is a software test which, when failed, indicates software problems. (Not supported on Option 11C) pra-13

TEST 201 x	Test interrupt handler-to-link interface path. This is a software test which, when failed, indicates software problems. (Not supported on Option 11C)	pra-13
TEST LLB x	Start local loop back test on MSDL DCH x. See “ENL TEST” command for details.	msdl-18
TEST RLB x	Start remote loop back test on MSDL DCH x. See “ENL TEST” command for details.	msdl-18

LD 117: Ethernet and Alarm Management

This overlay has a new command format that allows the administrator to:

- configure the Alarm Management feature
- identify all Meridian 1 alarms
- configure IP network interface addresses
- perform all IP network related maintenance and diagnostic functions

Both Administration and Maintenance commands appear in this overlay.

New Command Format

LD 117 uses a command line input interface (input parser) that has the following general structure (where "=>" is the command prompt):

=> COMMAND OBJECT [(FIELD1 value) (FIELD2 value)... (FIELDx value)]

LD 117 offers the administrator the following configuration features:

- **Context Sensitive Help** - Help is offered when "?" is entered. The Help context is determined by the position of the "?" entry in the command line. If you enter "?" in the COMMAND position, Help text will appear which presents all applicable command options. If you enter "?" in the OBJECT position, HELP text will appear which presents all applicable OBJECT options.
- **Abbreviated Inputs** - The new input parser will recognize abbreviated inputs for commands, objects and object fields. For example, "N" can be entered for the command "NEW" or "R" can be entered for the object "Route".

- **Optional Fields** - Object fields with default values can be bypassed by the user on the command line. For example, to configure an object which consists of fields with default values, enter the command, enter the object name, press <return>, and the object will be configured with default values. All object fields do not have to be specified.
- **Selective Change** - Instead of searching for a prompt within a lengthy prompt-response sequence, “Selective Change” empowers the administrator to directly access the object field to be changed.
- **Service Change Error Message Consistency** - The parser simplifies usage of service change error messages. LD 117 displays only SCH0099 and SCH0105.

Alarm Management Capability

With the Alarm Management feature, all *processor-based system events* are processed and logged into a new disk-based System Event List (SEL). Events which are generated as a result of administration activities, such as SCH or ESN error messages, *are not* logged into the SEL. Events which are generated as a result of maintenance or system activities, like BUG and ERR error messages, *are* logged into the SEL. Unlike the previous System History File, this new System Event List survives Sysload, Initialization and power failures.

Feature Packaging

With the exception of the Alarm Notification subfeature, the Alarm Management feature is optional. It is a major enhancement to the existing Meridian 1 Alarm Filtering (ALRM_FILTER) package 243.

The Event Collector

The Event Collector captures and maintains a list of all processor-based system events. The Event Collector also routes critical events to FIL TTY ports and lights the attendant console minor alarm lamp as appropriate. The System Event List (SEL) can be printed or browsed.

The Event Server

The *Event Server* consists of two components:

1 **Event Default Table (EDT)**: This table associates events with a default severity. By using the CHG EDT command in LD 117, the EDT is overridden so that all events default to a severity of either INFO or MINOR. The EDT is viewed in LD 117. The Default Table is stored in a disk file but is scanned into memory on start-up for rapid run-time access.

Sample Event Default Table (EDT)

Error Code	Severity
ERR220	Critical
IOD6	Critical
BUG4001	Minor

Note: Error codes which do not appear in the EDT will be assigned a default severity of MINOR.

2 Event Preference Table (EPT): This table contains site-specific preferences for event severities as well as criteria for severity escalation and alarm suppression. The administrator configures the EPT to:

a override the default event severity assigned by the default table

b escalate event severity of frequently occurring minor or major alarms

Sample Event Preference Table (EPT)

Error Code	Severity	Escalate Threshold (events/60 sec.) (see Note 2)
ERR??? (see Note 1)	Critical	5
INI???	Default	7
BUG1??	Minor	0
HWI363	Major	3

Note 3: The "?" is a wildcard. See the section below for explanation of wildcard entries.

Note 4: The window timer length defaults to 60 seconds. However, this value can be changed by the Administrator. Read "Global Window Timer Length" on page 440 for more information.

Wildcards

The special wildcard character "?" can be entered for the numeric segment of an error code entry in the EPT to represent a range of events. All events in the range indicated by the wildcard entry can then be assigned a particular severity or escalation threshold.

For example, if "ERR????" is entered and assigned a MAJOR severity in the EPT, all events from ERR0000 to ERR9999 are assigned MAJOR severity. If "BUG3?" is entered and assigned an escalation threshold of 5, the severity of all events from BUG0030 to BUG0039 will be escalated to the next higher severity if their occurrence rate exceeds 5 per time window.

Escalation and Suppression Thresholds

The escalation threshold specifies a number of events per window timer length that when exceeded, will cause the event severity to be escalated up one level. The window timer length is set to 1 minute by default. Escalation occurs only for minor or major alarms. Escalation threshold values must be less than the universal suppression threshold value.

A suppression threshold suppresses events that flood the system and applies to all events. It is set to 15 events per minute by default.

Global Window Timer Length

Both the escalation and suppression thresholds are measured within a global window timer length. The window timer length is set to 1 minute by default. However, the window timer length can be changed by using the CHG TIMER command in LD 117.

TTY Output Format of Events

TTY event output can be formatted or unformatted. Formatted output is also called fancy format. Output format is configurable in LD 117 using the CHG FMT _OUTPUT command.

Fancy Format Output

Formatted output appears in the following template:<severity> <report id> <date> <time> <prim_seq_no> <cp_id> <cp_ad>
DESCTXT: <descriptive text>
OPRDATA: <operator data>
EXPDATA: <expert data>

Field	Description
<severity>	"***" (critical); "**" (major); "*" (minor); " " (blank for info)
<report id>	The report ID consists of an event category (e.g. BUG, ERR, etc.) and an event number (1200, 230, etc.). It is padded with blanks at the end to ensure it is 9 characters long (4 characters max. for category and 5 digits max. for number). Examples of report ids are: ERR230, ACD3560, and BUG30.
<date>	DD/MM/YY
<time>	HH:MM:SS
<prim_seq_no>	Primary sequence number of the event (length of 5 digits)
<cp_id>	The Component ID is a 15 character string which indicates the id of the subsystem generating the alarm
<cp_ad>	The Component address is a 15 character string which indicates the address of the subsystem generating the event
<descriptive text>	This is an optional string which describes an event
<operator data>	This is an optional field which holds a 160 character string containing extra text or data to assist the operator in clearing a fault. This field contains any data output with a filtered SL-1 alarm (e.g. loop number, TN, etc.)
<expert data>	This is an optional variable length character string which contains extra text or data for a system expert or designer.

The following are samples of fancy format output:

```
*** BUG015 15/12/95  12:05:45  00345
EXPDATA: 04BEF0FC 05500FBA  05500EE2  05500EC6 05500EAA
BUG015 + 05500E72 + 05500E56 + 0550D96 + 055053A + 04D84E02 +
04D83CFC
BUG015 + 04D835CA 04D81BAE 04D7EABE 04F7EABE 04F7EDF2 04F7EFC
04F7E1B0

*      ERR00220 15/12/92 12:05:27 00346
OPRDATA: 51

       VAS0010 15/12/92 12:06:11 00347 VMBA     VAS 5
```

Unformatted Output

Unformatted data consists of only the report ID and perhaps additional text. The following is a sample of unformatted output:

```
BUG015
BUG015 + 04BEF0FC 05500FBA 05500EE2 05500EAA 0550E8E
BUG015 + 05500E72 05500E56 05500D96 0550053A 04D84E02
BUG015 + 04D835CA 04D81BAE 04D7EABE 04F7EDF2 04F7E2FC 04&E1B0
BUG015 + 04F7E148

ERR00220 51
VAS0010
```

Ethernet and Point-to-Point Protocol

LD 117 is used to configure and manage an IP network interface. The Meridian 1 51C, 61C, 81 and 81C Options are hardware-equipped with an Ethernet controller on the I/O processor (IOP) card. Each IOP card is equipped with a Local Area Network Controller for Ethernet (LANCE) which is preconfigured with an unique Ethernet address. The Option 11C will support Ethernet and Point-to-Point Protocol.

An Ethernet address is a unique 48-bit long physical address assigned to the Ethernet controller on the IOP. On a single CPU M1 system, there is only one IOP which contains one Ethernet interface and an IP address which must be configured. Single CPU systems use only a Primary IP address.

On a redundant or dual CPU M1 system, two IP addresses must be specified: Primary and Secondary. A dual CPU M1 system operating normally will use the Primary IP address. A dual CPU M1 system operating in split mode (the mode used only when upgrading software or hardware) will use the Secondary IP address.

Remote access to Meridian 1 switches is made possible with Point-to-Point Protocol (PPP). LD 117 is used to configure IP addresses for Point-to-Point Protocol.

The Meridian 1 Ethernet interface is provided by the IOP card with AUI cable on the back panel on Options 51C, 61C, 81 and 81C. The Option 11C provides Ethernet interface through an ethernet connection on the main cabinet. The Point-to-Point Protocol (PPP) is established via asynchronous connection to any Meridian 1 SDI port. The IP addresses for Ethernet and PPP interface is configured in Overlay 117, and defaults are used for all new installation and upgrades.

How to Configure Ethernet and Point-to-Point Protocol

The following tables explain how to configure IP addresses for Ethernet and Point-to-Point Protocol. These two tables are followed by examples.

Configure ELAN IP address for the Ethernet Interface (10BaseT)

Step	Action
1	Load Overlay 117
2	Create host entries
3	Assign host to primary and/or secondary IP address(es)
4	Set up Ethernet subnet mask
5	Set up routing entry

Configure ELAN IP address for the Point-to-Point Protocol Interface (10BaseT)

Step	Action
1	Load Overlay 117
2	Create host entries
3	Assign host to primary and/or secondary IP address(es)

Example 1
Configure ELAN IP address for the Ethernet Interface (10BaseT)

Given: Primary IP address: 47.1.1.10 ; Secondary IP address: 47.1.1.11; Subnet mask: 255.255.255.0; Default Gateway IP: 47.1.1.1

Step	Action
1	Load Overlay 117
2	Create host entries. Enter one of the following commands: NEW HOST PRIMARY_IP 47.1.1.10 NEW HOST GATEWAY_IP 47.1.1.1 (if connected to customer LAN) NEW HOST GATEWAY_IP 47.1.1.1 (if connected to customer LAN)
3	Assign host to primary and/or secondary IP address(es). Enter one of the following commands: CHG ELNK ACTIVE PRIMARY_IP CHG ELNK INACTIVE SECONDARY_IP (for Dual CPU only) Verify your IP address for Ethernet by entering the PRT ENLK command.
4	Set up Ethernet subnet mask. Enter the command: CHG MASK 255.255.255.0 Verify subnet mask setting by entering the command: PRT MASK
5	Set up routing entry. Enter the command: NEW ROUTE 0.0.0.0 47.1.1.1 (if connected to customer LAN) Where: 0.0.0.0 = destination network IP and 47.1.1.1 = default gateway IP ***Note:*** When more than one gateway exists, replace 0.0.0.0 with the destination network address for each entry of the routing table. Verify default routing by entering the command: PRT ROUTE

Note 1: For a single CPU machine, the secondary IP is not used.

Note 2: The secondary IP is only accessible when a system is in split mode.

Note 3: The subnet mask must be the same value used for the M1 Ethernet network.

Note 4: The M1 private Ethernet is used by all M1 devices for system access and control. An internet gateway must be used to isolate the M1 private Ethernet from the customer LAN (TLAN).

Note 5: Routing information is required if an internet gateway or router connects an M1 private network (ELAN) to the customer's LAN (TLAN).

Example 2
Configure ELAN IP address for the Point-to-Point Protocol Interface (10BaseT)

Given: Local IP address: 172.1.1.1; Remote IP address 100.1.1.1

Step	Action
1	Load Overlay 117
2	Create host entries. Enter one of the following commands: NEW HOST LOCAL_PPP 172.1.1.1 NEW HOST REMOTE_PPP 100.1.1.1 (this entry is optional)
3	Assign host to primary and/or secondary IP address(es). Enter one of the following commands: CHG PPP LOCAL LOCAL_PPP 0 (always use interface #0) CHG PPP REMOTE REMOTE_PPP 0 (this entry is optional) Verify your IP address(es) for PPP by entering the PRT PPP command.

Command Descriptions

Command	Definition	Description
****	Abort	Abort overlay or Printing if it is printing an Inventory file
BROWSE	Browse	Browse an existing System Event List
CHG	Change	Change/modify object configuration
DIS	Disable	Disable Point-to-Point Protocol
ENL	Enable	Enable Point-to-Point Protocol
INV GENERATE	Enable	Enable inventory
INV MIDNIGHT	Enable	Set Midnight routine for inventory
INV PRT	Print	Print out the status of the Inventory feature
NEW	New	Add and configure new object
OUT	Out	Delete existing object
PRT	Print	Print configuration of existing object
RST	Reset	Reset Object
SET	Set	Set ELNK subnet mask to configured value
STAT	Status	Display object statistics
UPDATE	Update	Update INET database

Object Descriptions

Object	Description
DBS	Database
EDT	Event Default Table: Table of default event entries and associated severities
ELNK	Ethernet interface
ELNK ACTIVE	Active Ethernet Link: Change the Primary IP address and host name
ELNK INACTIVE	Inactive Ethernet Link: Change the Secondary IP address and host name
EPT	Event Preference Table: Table of customer's event entries with associated severities
FMT_OUTPUT	Formatted Output: Determine if system events uses formatted (also called fancy) or unformatted output.
HOST	Host name
IPR	IP connectivity configuration associated with specified port
IPM	IP connectivity configuration associated with main cabinet
MASK	Subnet mask
OPEN_ALARM	Open Simple Network Management Protocol (SNMP) traps setting
PPP	Point-to-Point Protocol interface
PPP LOCAL	Local Point-to-Point Protocol interface address
PPP REMOTE	Remote Point-to-Point Protocol interface address
PTM	Point-to-Point Protocol idle Timer
ROUTE	Configure new routing entry
SELSIZE	System Event List Size: Number of events in System Event Log
SEL	System Event List
SUPPRESS	Suppress count: Number of times the same event is processed before it is suppressed
TIMER	Global window timer length

Auto Negotiate on 100BaseT ports

The Auto-Negotiation feature must be enabled on each Main Cabinet and Expansion Cabinet ethernet port to allow bandwidth negotiation of 100 Mbps full duplex.

Note: These commands are executed on the Main Cabinet side.

The commands for enabling auto-negotiation are:

- Main Cabinet ports
  CHG AUTONEG IPM <port> <a...a>
- Media Gateway port
  CHG AUTONEG IPR <port> <a...a>

To enable Auto-Negotiation with a Media Gateway configured on port one, enter the following commands:

CHG AUTONEG IPM 1 ON

CHG AUTONEG IPR 1 ON

IMPORTANT

When auto-negotiation is enabled, if a link is already up, a LINK DOWN message is reported on the TTY. This is normal since the data ports must perform the bandwidth negotiation protocol to obtain its required 100Mbps full duplex. This process could take 5 to 7 seconds. Once the process is complete, a LINK UP message is reported and the system is ready for normal operations.

To get the status of the auto-negotiation process, after process completion, enter the following commands:

STAT AUTONEG IPM

STAT AUTONEG IPR

The following is a sample print out for the Main Cabinet:

```
AUTO-NEGOTIATE LINK PARTNER STATUS - MAIN/CALL
SERVER PORTS
-------------------------------------------------
PORT Bandwidth Duplex Mode AutoNegotiate
=================================================

IPM 1 UNKNOWN UNKNOWN ON
IPM 2 UNKNOWN UNKNOWN
IPM 3 100 Mbps  full duplex  ON
IPM 4 UNKNOWN UNKNOWN
```

If the auto-negotiation process is successful, it will return " 100 Mbps full duplex". Otherwise UNKNOWN is reported, indicating a failure in negotiating the 100 Mbps full duplex bandwidth.

The following is a sample print out for the Media Gateway:

```
AUTO-NEGOTIATE LINK PARTNER STATUS - EXPANSION/MEDIA
GATEWAY PORTS
-------------------------------------------------
PORT Bandwidth Duplex Mode AutoNegotiate
=================================================

IPR 1 UNKNOWN UNKNOWN ON
IPR 2 UNKNOWN UNKNOWN
IPR 3 100 Mbps  full duplex  ON
IPR 4 UNKNOWN UNKNOWN
```

If the auto-negotiation process is successful, it will return " 100 Mbps full duplex". Otherwise UNKNOWN is reported, indicating a failure in negotiating the 100 Mbps full duplex bandwidth.

Option 11C IP Command Descriptions

Command	Definition	Description
CHG AUTONEG IPM	Change	Change Auto-Negotiation for Main Cabinet ports.
CHG AUTONEG IPR	Change	Change Auto-Negotiation for Expansion Cabinet port.
CHG AUTOSB <cab> <a...a>	Change	Change the automatic switch back option of a given Expansion Cabinet
CHG IPM <port> <ip> [mask]	Change	Changes the IP connectivity configuration associated with the Main Cabinet end of the specified port.
CHG IPR <port> <mac> [ip] [mask] [a...a]	Change	Change the IP connectivity configuration data associated with the Expansion Cabinet end of the specified port. a..a = zeroBandwidth = (NO) YES Default value for zeroBandwidth means that in a 'no traffic condition' bandwidth is not brought down to zero. Use NO in a PTP configuration, when data units are configured on the Expansion Cabinet to avoid potential packet loss. Use YES in a Layer 2 or Layer 3 configuration to bring the bandwidth down to zero in a no traffic condition.
CHG PDV <port> <delay>	Change	Set Packet Delay Variation (PDV) buffer size and delay.
CHG PPP LOCAL <hostname> [cab]	Change	Set CSE 1000 local Point-to-point Protocol interface IP address.
CHG PPP REMOTE <hostname> [cab]	Change	Set CSE 1000 remote Point-to-point Protocol interface IP address.
CHG PTM <xx> [cab]	Change	Change Point-to-Point Protocol Timer.
CHG SWOTO <cab> <x...x>	Change	Change the switch over time out timer of a given Media Gateway.
CHG SURV <cab> <a...a>	Change	Change Survivable Capability of a given Media Gateway.
DWL DBS [cab]	Download	Download 100BaseT database to the specified Expansion Cabinet.
NEW HOST <hostname> <IPaddress> [cab]	Enable	Configure a new host entry.

NEW ROUTE <destination IP> <gateway> [cab] [port]	Enable	Configure a new routing entry.
PRT CAB [cab]	Print	Print parameters and survivable capability of the specified Expansion Cabinet.
PRT IPM <port>	Print	Print the IP connectivity configuration data associated with the Main Cabinet end of the specified port.
PRT IPR <port>	Print	Print the IP connectivity configuration data associated with the Expansion Cabinet end of the specified port.
PRT PDV <port>	Print	Print the current size of the PDV buffer and the number of PDV underflows
PRT PPP [cab]	Print	Print Point-to-point Protocol interface address(es)
PRT PTM [cab]	Print	Print Point-to-Point Protocol idle timer settings
PRT QOS <cab>	Print	Print level of service based on system configured thresholds for selected Expansion Cabinet.
PRT SURV [cab]	Print	Prints the Expansion Cabinet Survivable capability for all, or specified Expansion Cabinets.
PING ipAddress	Test	Ping far end IP address IP (voice) link UP PING to/from 100BaseT is ONLY enabled among the Call Serever and the Expansion Cabinets. They will NOT respond to PING from/to any other device in the data network. IP (voice) link DOWN PING command is enabled to/from entire data network.
UPDATE DBS	Update	Rebuild INET database and download to all Expansion Cabinet.

Alphabetical list of Administration commands

The commands listed below use the following general structure (where "=>" is the command prompt):

=> COMMAND OBJECT [(FIELD1 value) (FIELD 2 value)... (FIELDx value)]

In the table below, COMMANDS and OBJECTS are in bold typeface and fields are in regular typeface. Fields enclosed in brackets ( ) are default values.

=> **Command**	**Description**
BROWSE SEL UP n	Browse up n # of lines in System Event List (SEL)
BROWSE SEL DOWN n	Browse down n # of lines in SEL
BROWSE SEL TOP	Browse to top of SEL
BROWSE SEL BOT	Browse to bottom of SEL
BROWSE SEL FIND xxx	Browse forward to find string xxx in SEL
BROWSE SEL BFIND xxx	Browse backward to find string xxx in SEL
CHG EDT NORMAL	Use Event Default Table (EDT) default severities
CHG EDT INFO	Override EDT; use INFO as default severity for all events except those specified in Event Preference Table (EPT)
CHG EDT MINOR	Override EDT; use MINOR as default severity for all events except those specified in Event Preference Table (EPT)
CHG ELNK ACTIVE hostname	Set Meridian 1 active Ethernet interface IP address
CHG ELNK INACTIVE hostname	Set Meridian 1 inactive Ethernet interface IP address
CHG EPT aa... a INFO x	Change an Event Preference Table (EPT) entry to Information severity, where: • aa... a = an event class with an event number (e.g. BUG1000, ERR0025) • x = optional entry to escalate value of EPT entry from (0)-Suppress value, as defined by default or your **CHG SUPPRESS** entry.
CHG EPT aa... a EDT x	Change EPT to NT-defined severity from EDT, where: • aa... a = an event class with an event number (e.g. BUG1000, ERR0025) • x = optional entry to escalate value of EPT entry from (0)-Suppress value, as defined by default or your **CHG SUPPRESS** entry.

=> **Command**	**Description**
CHG EPT aa... a MAJOR x	Change an EPT entry to Major severity, where: • aa... a = an event class with an event number (e.g. BUG1000, ERR0025) • x = optional entry to escalate value of EPT entry from (0)-Suppress value, as defined by default or your **CHG SUPPRESS** entry.
CHG EPT aa... a MINOR x	Change an EPT entry to Minor severity, where: • aa... a = an event class with an event number (e.g. BUG1000, ERR0025) • x = optional entry to escalate value of EPT entry from (0)-Suppress value, as defined by default or your **CHG SUPPRESS** entry.
CHG EPT aa... a CRITICAL x	Change an EPT entry to Critical severity, where: • aa... a = an event class with an event number (e.g. BUG1000, ERR0025) • x = optional entry to escalate value of EPT entry from (0)-Suppress value, as defined by default or your **CHG SUPPRESS** entry.
CHG FMT_OUTPUT OFF	Turn off formatted output
CHG FMT_OUTPUT ON	Turn on formatted output
CHG IPR x mac ip mask	Change the IP connectivity configuration data associated with the IP Expansion cabinet end of the specified port, where: • x = port number of the main cabinet to which the expansion cabinet is connected = 1-4 • mac = MAC address obtained from the sticker on the IP daughterboard mounted on the IP Expansion SSC = xx:xx:xx:xx:xx:xx where x is a hexidecimal digit in the range 0-F • ip = Internet Protocol address = x.x.x.x where x is an integer in the range 0-255, inclusive • mask = subnet mask = x.x.x.x where x is an interger in the range 0-255, inclusive

=> **Command**	**Description**
CHG IPM x ip mask	Changes the IP connectivity configuration associated with the main cabinet end of the specified port, where: • x = port number of the main cabinet to which the expansion cabinet is connected = 1-4 • ip = Internet Protocol address = x.x.x.x where x is an integer in the range 0-255, inclusive • mask = subnet mask = x.x.x.x where x is an interger in the range 0-255, inclusive
CHG MASK nnn.nnn.nnn.nnn	Change subnet mask
CHG PPP LOCAL hostname	Set Meridian 1 local Point-to-point Protocol interface IP address
CHG PPP REMOTE hostname	Set Meridian 1 remote Point-to-point Protocol interface IP address
CHG PTM 0-60	Change Point-to-point Protocol idle timer to specified value (in minutes)
CHG SELSIZE 5-(500)-2000	Change System Event List Size (number of events in SEL)
CHG SUPPRESS 5-(15)-127	Change global suppress for events (number of occurrences before event is suppressed)
CHG TIMER (1)-60	Change global timer window length in minutes. See “Global Window Timer Length” on page 440 for more information.
CHG ZONE 0-255 aa	Change the parameters of an existing Zone. All parameters must be re-entered, where: • aa = one of the following bandwidths: p1 = Intrazone available bandwidth (0 to 0.1MBps) p2 = Intrazone preferred strategy (BQ for Best Quality or BB for best Bandwidth) p3 = Interzone available bandwidth (0 to 0.1MBps) p4 = Interzone perferred strategy (BQ or BB)
INV GENERATE ABORT	Abort any currently running Inventory generations.
INV GENERATE ALL	Requests for the Inventory feature to begin generating both the card and telsets Inventory file.

=> **Command**	**Description**
INV GENERATE CARDS	Requests for the Inventory feature to begin generating the Inventory file for all of the cards in the system. The generation produces an inventory file with all of the cards configured on the system. Those cards that are present in the system and have card ID are noted in the inventory file with their card type, TN, and card ID. Those cards that do not have card ID or are not present in the system, will be noted to be “Unavailable” in place of their card ID.
INV GENERATE SETS	Requests for the Inventory feature to begin generating the Inventory file for the digital telsets with their telsets’ IDs that have been configured in the system. Those telsets that are present in the system and have sets ID are noted in the inventory file with their sets type, TN, sets ID, DES, Primary DN. Those telsets that do not have sets ID or ar not present in the sytem will be noted to be “Unavailable” in place of their sets ID.
INV MIDNIGHT ALL	Scheduling for the Midnight to run both Card and Sets Inventory generations.
INV MIDNIGHT CARDS	Scheduling for the Midnight to run Card Inventory generation.
INV MIDNIGHT OFF	Turns off Midnight run off Card and Sets Inventory generations.
INV MIDNIGHT SETS	Scheduling for the Midnight to run Sets Inventory generation.
INV MIDNIGHT STATUS	Print out the state of the Midnight schedule of Inventory.
INV PRT	Refer to INV PRT STATUS command.
INV PRT ALL	Requests for both the Card Inventory file and the Sets Inventory file to be printed out to the output destination (i.e. TTY).
INV PRT CARDS	Requests for the Card Inventory file to be printed out to the output destination (i.e. TTY).
INV PRT SETS	Requests for the Sets Inventory file to be printed out to the output destination (i.e. TTY)

=> **Command**	**Description**
INV PRT STATUS	Requests for the status of the Inventory feature. Result may look somewhat: Inventory status: Card file status is Ok 43 records; 18/03/1999 17:10:21 Sets file status is Ok 19 records; 18/03/1999 16:44:09
****	Abort overlay. This command can also be used to abort any Inventory file printing.
NEW EPT aa... a INFO x	Assign Information severity to new EPT entry, where: • aa... a = an event class with an event number (e.g. BUG1000, ERR0025) • x = optional entry to escalate value of EPT entry from (0)-Suppress value, as defined by default or your **CHG SUPPRESS** entry.
NEW EPT aa... a EDT x	Assign NT-defined severity from EDT to new EPT entry, where: • **aa... a = an event class with an event numbe**r (e.g. BUG1000, ERR0025) • x = optional entry to escalate value of EPT entry from (0)-Suppress value, as defined by default or your **CHG SUPPRESS** entry.
NEW EPT aa... a MAJOR x	Assign Major severity to new EPT entry, where: • aa... a = an event class with an event number (e.g. BUG1000, ERR0025) • x = optional entry to escalate value of EPT entry from (0)-Suppress value, as defined by default or your **CHG SUPPRESS** entry.
NEW EPT aa... a MINOR x	Assign Minor severity to new EPT entry, where: • aa... a = an event class with an event number (e.g. BUG1000, ERR0025) • x = optional entry to escalate value of EPT entry from (0)-Suppress value, as defined by default or your **CHG SUPPRESS** entry.

=> **Command**	**Description**
NEW EPT aa... a CRITICAL x	Assign Critical severity to new EPT entry, where: • aa... a = an event class with an event number (e.g. BUG1000, ERR0025) • x = optional entry to escalate value of EPT entry from (0)-Suppress value, as defined by default or your **CHG SUPPRESS** entry.
NEW HOST hostname IPaddress	Configure a new host entry. The host name must exist in the host table. The default setting for the Primary IP address is: 137.135.128.253. The default setting for Primary Host Name is: PRIMARY_ENET. The default setting for the Secondary IP address is: 137.135.128.254. The default setting for the Secondary Host Name is: SECONDARY_ENET. **Host Name Syntax:** A host name can be up to 16 characters in length. The first character of a host name must be a letter of the alphabet. A character may be a letter, number, or underscore(_). A period is used as a delimiter between domain names. Spaces and tabs are not permitted. No distinction is made between upper and lower case.
NEW ROUTE networkIP gateway IP	Configure a new routing entry
NEW ZONE xxx p1 p2 p3 p4	Create a new zone with the following parameters: • xxx = 0-255 zone number • p1 = intrazone available bandwidth 0-100000 kbits/s • p2 = intrazone preferred strategy (BQ for Best Quality or BB for Best Bandwidth) • p3 = interzone available bandwidth 0-100000 kbits/s • p4 = intrazone preferred strategy (BQ for Best Quality or BB for Best Bandwidth)

=> **Command**	**Description**
NEW ZONE 0-255	Create a new Zone with the default bandwidth values. The default bandwidth values include: 10KBps for Intrazone available bandwidth BQ for iIntrazone preferred strategy 10KBps for Interzone available BQ for Interzone preferred strategy
NEW ZONE 0-255 aa	Create a new Zone, where: • aa = one of the following bandwidths: p1 = Intrazone available bandwidth (0 to 0.1MBps) p2 = Intrazone preferred strategy (BQ for Best Quality or BB for best Bandwidth) p3 = Interzone available bandwidth (0 to 0.1MBps) p4 = Interzone perferred strategy (BQ or BB)
OUT EPT aa... a	Delete a single Event Preference Table (EPT) events, where: • aa... a = an event class with an event number (e.g. BUG1000, ERR0025)
OUT EPT ALL	Delete all entries in Event Default Table (EDT)
OUT HOST nnn	Delete configured host entry
OUT ROUTE nn	Delete configured routing entry
OUT ZONE 0-255	Remove an existing zone.
PRT EDT aa... a	Print a single Event Default Table (EDT) event, where: • aa... a = an event class with an event number (e.g. BUG1000, ERR0025)
PRT EDT aa... a bb...b	Print a range of Event Default Table (EDT) events, where: • aa... a = first entry in EDT event range (e.g. BUG1000, ERR0025) • bb...b = last entry in EDT event range (e.g. BUG1000, ERR0025)
PRT ELNK	Print active and inactive Ethernet interface IP addresses

=> **Command**	**Description**
PRT EPT aa... a	Print a single Event Preference Table (EPT) entry, where: • aa... a = an event class with an event number (e.g. BUG1000, ERR0025
PRT EPT aa... a bb...b	Print specific Event Preference Table (EPT) entry, where: • aa... a = first entry in EPT event range (e.g. BUG1000, ERR0025) • bb...b = last entry in EPT event range (e.g. BUG1000, ERR0025)
PRT EPT ALL	Print all entries in Event Preference Table (EPT)
PRT FMT_OUTPUT	Print formatted output string
PRT HOST	Print network host table entry(ies) information stored in database
PRT IPR x	Prints the IP connectivity configuration data associated with the IP Expansion cabinet end of the specified port, where: • x = 1-4
PRT IPM x	Prints the IP connectivity configuration data associated with the Main cabinet end of the specified port, where: • x = 1-4
PRT MASK	Print subnet mask stored in database
PRT OPEN_ALARM	Print open Simple Network Management Protocol (SNMP) traps setting
PRT PPP	Print Point-to-point Protocol interface address(es)
PRT PTM	Print current Point-to-point Protocol idle timer settings
PRT ROUTE	Print routing table entry(ies) information stored in database
PRT SEL nn	Print most recent record(s) in system event list, where: nn = 0-(20)-SELSIZE. For example, if nn = 50, the 50 most recent events in the system event list will be printed.
PRT SELSIZE	Print System Event List size
PRT SUPPRESS	Print global suppress value
PRT TIMER	Print global timer window length (in minutes). See “Global Window Timer Length” on page 440 for more information.
PRT ZONE ALL	Print zone information for all configured zones
PRT ZONE 0-255	Print zone information for a specific zone

=> **Command**	**Description**
OUT EPT ALL	Delete all entries in Event Preference Table (EPT)
OUT EPT aa...a	Delete a single EPT entry, where: • aa... a = first entry in EPT event range (e.g. BUG1000, ERR0025)
RST ELNK ACTIVE	Reset Meridian 1 active Ethernet interface IP address to default value
RST ELNK INACTIVE	Reset Meridian 1 inactive Ethernet interface IP address to default value
RST IPR x	Restores the default IP connectivity configuration for the IP Expansion cabinet end of the specified port, where: • x = 1-4
RST IPM x	Restores the default IP connectivity configuration for the Main cabinet end of the specified port, where: • x = 1-4
RST MASK	Reset subnet mask to default
RST PPP LOCAL	Reset local Point-to-point Protocol interface IP address to default value
RST PPP REMOTE	Reset remote Point-to-point Protocol interface IP address to default value
RST PTM	Reset Point-to-point Protocol idle timer to default
UPDATE DBS	Rebuild INET database and renumber host and route entry ID

Alphabetical list of Maintenance Commands

Maintenance commands share the same entry format as Administration commands.

=> **Command**	**Description**
DIS BUF ALL	Disable buffering for all data types
DIS BUF CDR	Disable buffering for CDR data
DIS BUF TRF	Disable buffering for TRF data
DIS DBK	Display database disaster recovery's backup & restore
DIS HOST n	Remove a host from the run time host table, where: n = host entry number
DIS PPP	Disable Point-to-point Protocol access (this enables PPPD)
DIS ROUTE n	Remove a route from the run time routing table, where: n = route entry number
DIS ZONE 0-255	Disable a Zone No new calls will be established inside the disabled zone, from or towards this Zone.
ENL BUF ALL	Enable buffering for all data types
ENL BUF CDR	Enable buffering for CDR data
ENL BUF TRF	Enable buffering for TRF data
ENL DBK	Enable database disaster recovery's backup & restore
ENL HOST n	Add a host to run time host table, where: n = host entry number
ENL PPP	Enable Point-to-point Protocol access (Enables PPPD command)
ENL ROUTE n	Add a route to run time routing table, where: n = route entry number
ENL ZONE 0-255	Enable a Zone
PING	Ping an IP address to test the network settings
SET MASK	Set ELNK subnet mask to configured value

=> **Command**	**Description**
SET OPEN_ALARM slot address	Add an SNMP (Simple Network Management Protocol) trap destination slot address from 0 to 7. The address format is: x.x.x.x. (TCP/IP) To clear slot, set address to 0.0.0.0.
STAT AUTONEG IPM	Display auto-negotiate status of Main Cabinet ports. The following report is displayed: AUTO-NEGOTIATE LINK PARTNER STATUS - MAIN/CALL SERVER PORTS ---------- PORT Bandwidth Duplex Mode AutoNegotiate ========== IPR 1 UNKNOWN UNKNOWN ON IPR 2 UNKNOWN UNKNOWN IPR 3 100 Mbps full duplex ON IPR 4 UNKNOWN UNKNOWN If the auto-negotiation process is successful, it will return " 100 Mbps full duplex". Otherwise UNKNOWN is reported, indicating a failure in negotiating 100 Mbps full duplex bandwidth.

=> **Command**	**Description**
STAT AUTONEG IPR	Display auto-negotiate status of Expansion Cabinet ports. The following report is displayed: AUTO-NEGOTIATE LINK PARTNER STATUS - EXPANSION/MEDIA GATEWAY PORTS ---------- PORT Bandwidth Duplex Mode AutoNegotiate ========== IPR 1 UNKNOWN UNKNOWN ON IPR 2 UNKNOWN UNKNOWN IPR 3 100 Mbps full duplex ON IPR 4 UNKNOWN UNKNOWN If the auto-negotiation process is successful, it will return " 100 Mbps full duplex". Otherwise UNKNOWN is reported, indicating a failure in negotiating 100 Mbps full duplex bandwidth.
STAT BUF	Display buffer info (data type,% full, not ready)
STAT DBK	Display status of disaster recovery (enabled, disabled)
STAT HOST	Display current runtime host table status
STAT PPP	Show Point-to-point Protocol connection status
STAT ROUTE	Display host and network routing table

LD 135: Core Common Equipment Diagnostic

LD 135 provides diagnostic and maintenance information for Option 11C/51C/61C/81C/81C CP PII® systems. It provides a means of performing the following functions:

- clearing minor and major alarms
- clearing and printing maintenance display contents for the primary Core
- testing the idle Core
- displaying CP/CP PII card status and ID
- enabling and disabling CNI/cCNI cards
- displaying CNI/cCNI card ID and status
- testing SIMMs, inactive CNIs/cCNIs, and standby Core during daily routines
- switch Cores when in redundant mode
- during midnight routines checks primary CNIs/cCNIs, checks for Core redundancy, and attempts to switch Cores

When a status appears disabled, one or more Out-of-Service (OOS) messages may appear. Listed below are the possible OOS messages. (What actually appears are the numbers associated with the OOS text).

Possible OOS Messages

0 = CP/CP PII local bus parity threshold exceeded
1 = CP/CP PII card HPM timeout threshold exceeded
8 = Unconfigured CNI/cCNI card
9 = Port has been disabled by craftsperson
10 = Device is not accessible
16 = CNI to 3PE cable 1 on specified card and port lost
17 = CNI to 3PE cable 2 on specified card and port lost
18 = 3PE power lost
19 = 3PE has been manually disabled
20 = CNI/cCNI card has been manually disabled
21 = Card test failed
22 = Port test failed
23 = Extender disabled by Meridian 1 initialization
24 = Port interrupt line 0 disabled
25 = Port interrupt line 1 disabled
26 = Port interrupt line 2 disabled
27 = Port interrupt line 3 disabled

Adding a group to an Option 81C/81C CPII

Note: Refer to *Hardware Upgrade Procedures* (553-3001-258) to add a group, or groups, to an Option 81C/81C CP PII equipped with Fibre Network Fabric.

Basic Commands

CDSP	Clear maintenance displays
CMAJ	Clear major alarm, and reset power fail transfer
CMIN	Clear the minor lamp on a system basis
CMIN ALL	Clear minor alarm indication on all attendant consoles
CUTOVR	Transfer call processing from active core to standby core
DIS CNI	Disable all CNIs
DIS CNI c s	Disable the CNI card
DIS CNI c s p	Disable the CNI port
DIS EXT x	Disable the specified extender pair X (0G0 to 0G7, 1G0 to 1G7)
DIS SUTL	Disable System Utility card card at the specified side and slot #
DSPL	Get contents of maintenance display for the active Core
DSPL ALL	Get contents of maintenance display for the active Core as well as previous 63 displays
ENL CNI c s	Enable CNI card
ENL CNI c s p	Enable CNI port
ENL EXT x	Enable the specified extender pair X (0G0 to 0G7 and 1G0 to 1G7)
ENL SUTL	Enable System Utility card at the specified side and slot #
IDC CNI s	Print the card ID for the CNI on the active side
IDC CPU	Print card ID for the active Core
JOIN	Synchronizes the memory and drives
MIDN	Run midnight routines after LD 135 is aborted and TTY is logged out
SCPU	Switch Cores
SHDW	Restore redundancy to a system put in single mode by the SPLIT command
SPLIT	Put a redundant (shadowed) system into single (non-shadowed) mode
STAT CNI	Get the status of all configured CNIs
STAT CNI c	Get the status of all configured CNIs from side c
STAT CNI c s	Get the status of all configured CNIs from side c and slot s
STAT CNI c s p	Get the status of port p of the configured CNI from side c and slot s
STAT CPU	Get the status and core numbers for both CPs
STAT EXT	Output all extender pair designations (0G0 to 0G7 and 1G0 to 1G7)
STAT MEM	Get the status of SIMMs on both CPs

STAT MEM c m	Get status of SIMMs on both CPs
STAT SUTL	Get status of System Utility (both main and transition) cards
TEST CNI c s	Test cCNI cards (core, slot)
TEST CNI c s p	Test the CNI port
TEST CPU	Test the inactive (standby) Core. This command performs NO tests upon the active (primary) Core.
TEST IPB	Test the backplane protocol on the secondary (inactive) Interprocessor Bus. This command does NOT test the primary (active) IPB.
TEST LCD	Test the LCD display on the active CP card.
TEST LEDs	Test LEDs
TEST SUTL	Test System Utility (both main and transition) cards

Option 11C commands

DIS FIL n	Disable fibre optic link n
ENL FIL n	Enable fibre optic link n
LLBK FIL n	Perform local loop back test on fibre optic link n
LOCK n	Lock IP Expansion cabinet in its operating mode
RLBK FIL n	Perform remote loop back test on fibre optic link n
SBTS n	Force IP Expansion cabinet to Slave mode
SOTS n	Switch Over To Survival command
STAT CPU	Get the status of the CPU card
STAT FIL	Get status of all fibre optic links
STAT FIL n	Get status of fibre optic link or IP link n
STAT MAC	Get MAC address of IP daughterboards installed on SSC card
UNLOCK n	Unlock an IP Expansion cabinet from its operating mode

Alphabetical list of commands

Command	Description	Pack/Rel
CDSP	Clear maintenance displays. This command sets the maintenance display for the primary CP to blank.	basic-18
CMAJ	Clear major alarm, and reset power fail transfer	basic-18
CMIN	Clear the minor lamp on a system basis	alrm_filter-22
CMIN ALL	Clear minor alarm indication on all attendant consoles	basic-18
CUTOVR	Transfer call processing from active core to standby core	cpp_cni-25
DIS CNI	Disable all cCNIs	cpp_cni-25
DIS CNI c s	Disable the cCNI card. Where: • c = Core number (0 or 1) This must be the standby side. Disable the active side if the CNI is not in service. • s = Slot number (8-12)	cpp_cni-25
DIS CNI c s p	Disable the cCNI port. Where: • c = Core number (0 or 1) This must be the standby side. Disable the active side if the cCNI is not in service. • s = Slot number (8-12) • p = Port number (0, 1) If the P is not entered, both ports, and the card itself are disabled. Where: • p = (0, 1, 2) Option 81C with Fiber Network Fabric	basic-18 fnf-25
DIS EXT x	Disable the specified extender pair X (0G0 to 0G7, 1G0 to 1G7). Only extenders on the non-active CPU may be disabled. The extender is marked as unusable by the system and it will not attempt to use it i.e. a CPU changeover will not be permitted.	fnf-25

DIS FIL n	Disable fibre optic link n Where : n = 1 (first expansion cabinet) n = 2 (second expansion cabinet) n = 3 (third expansion cabinet) n = 4 (fourth expansion cabinet)	opt11c-22
DIS SUTL c s	Disable System Utility card. Where: • c = Core number (0 or 1) • s = Slot number (15)	cpp_cni-25
DSPL	Get contents of maintenance display for the active Core. If the maintenance display is blank, BLANK is output.	basic-18
DSPL ALL	Get contents of maintenance display for the active Core, and previous 63 displays.	basic-18
ENL CNI c s	Enable cCNI card	cpp_cni-25
ENL CNI c s p	Enable cCNI port Where: c = Core number (0 or 1) ; s = Slot number (8-12) ; p = Port number (0 or 1) If the P is not entered, both ports, and the card itself are enabled. A port cannot be enabled if the card is disabled. Enabling the CNI card will also enable the 3 Port Extender. Where: • p = (0, 1, 2) Option 81C with Fiber Network Fabric	basic-18 fnf-25
ENL EXT x	Enable the specified extender pair X (0G0 to 0G7 and 1G0 to 1G7). Only extenders on the non-active CPU may be enabled.	fnf-25
ENL FIL n	Enable fibre optic link n. Where : • n = 1 (first expansion cabinet) • n = 2 (second expansion cabinet) • n = 3 (third expansion cabinet) • n = 4 (fourth expansion cabinet)	opt11c-22

ENL SUTL c s	Enable System Utility card. Where: • c = Core number (0 or 1) • s = Slot number (15)	cpp_cni-25
IDC CNI s	Print the card ID for the CNI on the active side. Where: s = Slot number (8-12). The printout appears in the following format: `x y pppppppaa rrssss ccccccc` Where: • `x` = Core number (0 or 1) • `y` = Slot number (8-12) • `pppppppp` = PEC code • `aa` = Attribute code • `rr` = Release number • `ssss` = Serial number • `cccccccc` = Comments (optional)	basic-18
IDC CPU	Print card ID for the active Core. The printout appears in the following format: `x y pppppppppp rrssss ccccccc` Where: • `x` = Core number (0 or 1) • `y` = Slot number (8-12) • `pppppppppp` = PEC code • `rr` = Release number • `ssss` = Serial number • `cccccccc` = Comments (optional)	basic-18
IDC SUTL c s	Print cCNI's card ID Where: • c = Core number (0 or 1) • s = Slot number (15)	cpp_cni-25
JOIN	Synchronizes the memory and drives	cpp_cni-25

LLBK FIL n	Perform local loop back test on fibre optic link n (link must be disabled) Where : n = 1 (first expansion cabinet) n = 2 (second expansion cabinet) n = 3 (third expansion cabinet) n = 4 (fourth expansion cabinet)	opt11c-22
MIDN	Run midnight routines after LD 135 is aborted and TTY is logged out.	basic-18
RLBK FIL n	Perform remote loop back test on fibre optic link n (link must be disabled) Where : n = 1 (first expansion cabinet) n = 2 (second expansion cabinet) n = 3 (third expansion cabinet) n = 4 (fourth expansion cabinet)	opt11c-22
SCPU	Switch Cores. This command causes the inactive CP to become active. If the switchover is successful, OK in printed. If it is not successful, an error message is printed. If, when attempting to switch CPs, the system determines the currently active side is better than the standby side, a message appears on the TTY: “FORCE Enter <YES> to force SCPU to standby Core x. Press <Return> to abort SCPU." Entering Yes continues the switch. Entering a Carriage Return <CR> defaults to No and retains the currently active side.	basic-18
SHDW	Restore redundancy to a system put in single mode by the SPLIT command. This command cannot be used unless the system is already SPLIT. This command MUST be entered by the CPIO port on the secondary CP.	basic-18

	SHDW puts the secondary CP to "sleep." Once the secondary CP is asleep, the primary CP begins the process of updating the secondary CP's memories so they match the primary CPs. SHDW does NOT synchronize the contents of the CMDUs. Use LD 137 to synchronize the CMDUs. When implementing this command, the following is output: `WARNING: CP x will be put to SLEEP.` Enter <YES> to continue, or press <return> to abort.	
SPLIT	Put a redundant (shadowed) system into single (non-shadowed) mode. The active Core remains active. Use this command for parallel reload, and for diagnostics requiring split mode operation. Additionally, the standby (inactive) Core "wakes up" and does a system level INIT. When the command is successful, `OK` is printed. If it is not successful, an error message is printed. This command has the same effect as putting both Cores into MAINT. If a terminal is connected to the secondary Core's CPIO port, OS level startup messages appear as well as INI messages. This is not an error, and is operating according to design. If the disks are not synchronized, the command aborts, and an error message appears.	basic-18
STAT CNI	Get the status of all configured cCNIs.	cpp_cni-25
STAT CNI c	Get the status of all configured cCNIs from side c	cpp_cni-25
STAT CNI c s	Get the status of all configured cCNIs from side c and slot s	cpp_cni-25

STAT CNI c s p

Get the status of port p of the configured cCNI from side c and slot s. (This command also prints the Network Group number of both ports on each cCNI.) basic-18

To get the status of a specific cCNI port, enter the following information. Entering only STAT CNI gets the status for all CNI ports.

Where: c = Core number (0 or 1) ; s = Slot number (8-12) ; p = Port number (0 or 1).

If the P is not entered, the status of all ports is printed. fnf-25

Where:

- p = (0, 1, 2) Option 81C with Fiber Network Fabric

If the status is DSBL (Disabled), one or more of the OOS reasons may appear. What actually appears are the numbers associated with the OOS text.

- 0 = CP local bus parity threshold exceeded
- 1 = CP card HPM timeout threshold exceeded
- 8 = Unconfigured cCNI card
- 9 = Port has been disabled by craftsperson
- 10 = Device is not accessible
- 16 = CNI to 3PE cable 1 on specified card and port lost
- 17 = CNI to 3PE cable 2 on specified card and port lost

Note: 16 and 17 are not applicable for CP PII

- 18 = 3PE power lost
- 19 = 3PE has been manually disabled
- 20 = cCNI card has been manually disabled
- 21 = Card test failed
- 22 = Port test failed
- 23 = Extender disabled by Meridian 1 initialization
- 24 = Port interrupt line 0 disabled
- 25 = Port interrupt line 1 disabled
- 26 = Port interrupt line 1 disabled cpp_cni-25
- 28 = cCNI to 3PE cable on specified card and port lost

STAT CPU	Get the status and core numbers for both CPs. Possible responses are: • ENBL = CP is running • IDLE = CP is in standby • DSBL = CP is disabled If the status is DSBL, one of the following OOS reasons is printed: • 0 = CP card local bus parity threshold exceeded • 1 = CP card sanity timeout threshold exceeded • 10 = Secondary CP is not accessible • 16 = Secondary CP has a major fault This command also prints out the results of the latest self-test, and the position of the MAINT/NORM switch.	basic-18
STAT EXT	Output all extender pair designations (0G0 to 0G7 and 1G0 to 1G7).	fnf-25
STAT EXT x	Output status of the specified ext pair X x = 0G0 from CPU0 to Network Group 0. x = 0G1 from CPU0 to Network Group 1. x = 0G2 from CPU0 to Network Group 2. x = OG3 from CPU0 to Network Group 3. x = OG4 from CPU0 to Network Group 4. x = OG5 from CPU0 to Network Group 5. x = OG6 from CPU0 to Network Group 6. x = OG7 from CPU0 to Network Group 7. x = 1G0 from CPU1 to Network Group 0. x = 1G1 from CPU1 to Network Group 1. x = 1G2 from CPU1 to Network Group 2. x = 1G3 from CPU1 to Network Group 3. x = 1G4 from CPU1 to Network Group 4. x = 1G5 from CPU1 to Network Group 5. x = 1G6 from CPU1 to Network Group 6. x = 1G7 from CPU1 to Network Group 7.	fnf-25
STAT FIL	Get status of all fibre optic links. Link status may be ENBL (enabled), DSBL (disabled), LLBK (local loop back mode) or RLBK (remote loop back mode)	opt11c-22

STAT FIL n	Get status of fibre optic link n Where : • n = 1 (first expansion cabinet) • n = 2 (second expansion cabinet) • n = 3 (third expansion cabinet) • n = 4 (fourth expansion cabinet)	opt11c-22
STAT MEM	Get the status of SIMMs on both Call Processors	cpp_cni-25
STAT MEM c m	Get status of SIMMs on both CPs. To get the status of a single SIMM, or a specific side, enter the following information. Where: • c = Core (0 or 1) • m = SIMM number (0-5) If m is not entered, status for all SIMMs is printed. If the status is Disabled (DSBL), the device is not accessible	basic-18
STAT SUTL	Get status of System Utility, both main and transition cards	cpp_cni-25
TEST CNI c s	Test cCNI cards (core, slot)	cpp_cni-25
TEST CNI c s p	Test the cCNI port. Where: • c = Core number (0 or 1) • s = Slot number (8-12) • p = Port number (0 or 1) If the P is not entered, both ports are tested. This command can test Standby cCNIs as well as active cCNIs that are out of service. This may take a few minutes because of the time required to reestablish memory shadowing and contents. When the command is successful, OK is printed. If it is not successful, an error message is printed.	basic-18
	Where: • p = (0, 1, 2) Option 81C with Fiber Network Fabric	fnf-25

TEST CPU	Test the inactive (standby) Core. This command performs NO tests upon the active (primary) Core. The CMB (on the CP card), CP to CP cable, and memory are sure that Split mode can be entered safely. Then the CP is tested. The system enters split mode, runs the test, and returns to redundancy (memory shadowing). This may take a few minutes because of the time required to reestablish memory shadowing and contents. It is possible, during the test, that service may be interrupted if an error occurs on the single active Core. Output from this test is "OK," or a CCED message. Refer to the specific message for more information. Testing the secondary (inactive) Core is done by performing a "reset" on the secondary Core. If a terminal is connected to the secondary Core's CPIO, cold start diagnostics are displayed on the terminal. This is not an error, and is operating according to design.	basic-18
TEST IPB	Test the backplane protocol on the secondary (inactive) Interprocessor Bus. This command does NOT test the primary (active) IPB. The system enters split mode, runs the test, and returns to redundancy (memory shadowing). When the command is successful, OK is printed. If it is not successful, an error message is printed. This may take a few minutes because of the time required to reestablish memory shadowing and contents. It is possible, during the test, that service may be interrupted if an error occurs on the single active Core.	basic-18
TEST LCD	Test the LCD display on the active CP card. The following test pattern is displayed on the active CP card's display: • 8888888888888888 • 8888888888888888 • ABCDEFGHIJKLMNOP • QRSTUVWXYZ123456 • abcdefghijklmnop • qrstuvwxyz012345 The first two tests go by very quickly, so you may actually see only the third one.	basic-18

TEST LEDs	Test LEDs	cpp_cni-25
TEST SUTL	Test System Utility (both main and transition) cards	cpp_cni-25

LD 137: Core Input/Output Diagnostic

LD 137 provides IOP, CMDU, and cMMDU related diagnostic and maintenance information for Option 11C, 51C, 61C, and 81C machines. Some commands in LD 37 can also be used. Refer to that program.

LD 137 provides a means of performing the following functions.

- enabling and disabling the IOP, CMDU, and cMMDU cards
- displaying status and card ID for IOP, CMDU, and cMMDU cards
- testing the IOP, CMDU, and cMMDU (the hard and floppy disk drives are tested)
- testing individual disk drives
- enabling and disabling disk redundancy
- testing SCSI cable connections between IOP, CMDU, and cMMDUs
- testing disk synchronization on file or sector levels
- during midnight routines performs DATA CMDU, DATA RDUN commands
- displaying the Security Device Identification of the Security Dongle

The DATA CMDU AND DATA RDUN midnight routines are run every 5 days.

When a status appears disabled, one or more Out of Service (OOS) messages may appear. Listed below are the possible OOS messages:

- IOP out-of-service
- Unexpected interrupt fault monitor threshold exceeded
- Fault interrupt fault monitor threshold exceeded
- Processor exception fault monitor threshold exceeded
- ASIC interrupt fault monitor threshold exceeded
- Unrecognized error fault monitor threshold exceeded
- General event interrupt fault monitor threshold exceeded
- IOP not responding
- IOP disabled by craftsperson
- IOP responding but cannot be enabled
- CMDU/cMMDU out-of-service
- Hard disk read error
- Hard disk write error
- Hard disk drive error
- CMDU/cMMDU does not respond, the disk drive may be missing
- CMDU/cMMDU has been disabled by the craftsperson
- CMDU/cMMDU is disabled because the IOP is out-of-service
- Hard disk is inaccessible
- CMDUs/cMMDUs are not synchronized
- CMDU/cMMDU status is mismatched because of a software error
- CMDU/cMMDU is in split mode
- CMDU/cMMDU is out of split mode
- No access to hard disk (HDK)

Basic Commands

DATA CMDU n	Perform read tests on the specified CMDU/MMDU.
DATA CMDU n HDK, FDK	Perform read test on either the Hard Disk or Floppy Disk
DATA RDUN	Perform sector level checking on both hard disk
DIS CMDU n	Disable CMDU/MMDU.
DIS ELNK	Disable the ethernet link on the active IOP card
DIS IOP	Disable the active IOP and Ethernet
ENL CMDU n	Enable the CMDU/MMDU.
ENL ELNK	Enable the ethernet link on the active IOP card
ENL IOP	Enable IOP on the active Core and Ethernet
ENL HOST n	Add a host to run time host table
IDC	Print the IDs of both CMDUs/MMDUs and the active IOP
IDC CMDU n	Print the ID for the CMDU/MMDU
IDC CMDU c s d	Print the ID for the CMDU/MMDU
IDC IOP	Print out the ID of the active IOP
SDID	Display Security Device Identification
STAT	Get status of IOPs, CMDUs, MMDUs and Ethernet.
STAT CMDU n	Get status of the CMDU/MMDU.
STAT CMDU c s d	Get status of the CMDU/MMDU
STAT ELNK	Display status of the ethernet link on the active IOP card whether enabled or disabled
STAT HOST	Display current run time host table status
STAT IOP	Display status of the active IOP and Ethernet
STAT RDUN	Get status of both hard disks
SWAP	Swap the CMDUs/MMDUs
SYNC	Synchronize the hard disks on both CMDUs/MMDUs
TEST CMDU n	Perform test for the CMDU/MMDU
TEST CMDU c s d	Perform test for the CMDU/MMDU
TEST CMDU n HDK, FDK	Perform test on the Hard or Floppy Disk
TEST IOP	Perform the self test on the active IOP

TEST RDUN	Perform file level checking on both hard disks
TEST SCSI	Test the SCSI cables
TTY x	Test TTY x

Option 11C Commands

Command	Description
DIS ELNK	Disable ethernet link
ENL ELNK	Enable ethernet link
STAT	Get status of PPP and ethernet link
STAT ELNK	Display status of ethernet link

Alphabetical list of commands

Command	Description	Pack/Rel
DATA CMDU n	Perform read tests on the specified CMDU/MMDU. This data validity check is performed on both hard and floppy disks. While the test is in progress, the CMDU/MMDU is inaccessible. Progress messages are output. n = core number (0 or 1) If n is not entered, this command checks both CMDUs/MMDUs. This is more extensive than the TEST command, and may take longer.	basic-18
DATA CMDU n HDK, FDK	Perform read test on either the Hard Disk or Floppy Disk. This is a data validity check. While the test is in progress, the Disk is inaccessible. Where: n = Core number (0 or 1). You must enter the Core number. This is more extensive than the TEST command, and may take longer.	basic-18
DATA RDUN	Perform sector level checking on both hard disks. This test ensures that disk synchronization (disk redundancy) exists. It can only be performed when disk redundancy is enabled. All data is checked, on both disks, sector by sector. If the test fails, a CIOD message appears, and disk redundancy is disabled. This is more extensive than the TEST command, and may take longer. While this test is in progress, the disks are inaccessible.	basic-18

DIS CMDU n	Disable CMDU/MMDU. Where: n = Core number (0 or 1). You must enter the Core number. If disk redundancy is currently enabled (both CMDUs are enabled and enabled), disabling the CMDU/MMDU also disables disk redundancy. The confirmation is displayed: "CURRENTLY CMDU N IS ACTIVE. DISK RDUN WILL BE DISABLED. ENTER Y(ES) TO CONFIRM, N(O) TO ABORT." If the specified CMDU/MMDU is in standby, its state is changed to disabled. If it is the active CMDU/MMDU, it is disabled, and the standby CMDU/MMDU becomes active.	basic-18
DIS ELNK	Disable the ethernet link on the active IOP card. An attempt is made to disable the Ethernet link. When the link is disabled, all activities will be terminated. The system displays OK to indicate that the link is disabled or FAIL to indicate that the link could not be disabled.	basic-22
DIS IOP	Disable the active IOP and Ethernet. The LED is lit on the IOP faceplate and both CMDUs are inaccessible.	basic-18
ENL CMDU n	Enable the CMDU/MMDU. Where: n = Core number (0 or 1). You must enter the Core number. When the first CMDU/MMDU is enabled, that CMDU/MMDU's state is ACTIVE. If a second ENL CMDU/MMDU is attempted, a file level synchronization on both hard disks is performed first. If the synchronization (disk redundancy) does not exist, a CIOD error message is printed, and the second CMDU/MMDU remains disabled. If the synchronization exists, the confirmation is displayed: "DISK RDUN WILL BE ENABLED, ENTER Y(ES) to CONFIRM, N(O) TO ABORT." When disk redundancy is successful, both CMDU/MMDU states are Enabled. The CMDU/MMDU enabled first is active, and the second is standby.	basic-18

ENL ELNK	Enable the ethernet link on the active IOP card. If the Ethernet link is down, entering this command will cause an attempt to restore the Ethernet link to normal operation state. However, if the system cannot successfully restore the link, the Ethernet link will remain disabled. If the link was already up, this command does not affect the current operation of it. The system displays `OK` to indicate that the link is now enabled or `FAIL` to indicate that the link could not be enabled.	basic-22
ENL HOST n	Add a host to run time host table.	basic-22
ENL IOP	Enable IOP and Ethernet on the active Core. The LED is turned off on the IOP faceplate. The CMDUs are restored to the state they were in prior to the IOP being changed. However, if the cable between the IOPs is not connected, the CMDUs remain inaccessible until the cable is reattached. If both CMDUs/ were enabled, a file level synchronization check is performed prior to restoring states. If the synchronization (disk redundancy) does not exist, only the previously active CMDU is enabled.	basic-18
IDC	Print the IDs of both CMDUs and the active IOP. The printout appears in the following format: `pppppppppp rrssss cccccccc` Where: • `pppppppppp` = PEC code • `rr` = Release number • `ssss` = Serial number • `cccccccc` = Comments (not always be present)	basic-18
IDC CMDU n	Print the ID for the CMDU/MMDU. Where: n = Core number (0 or 1). If n is not entered, card ID information is printed for both CMDUs/MMDUs.	basic-18
IDC CMDU c s d		cpp_cni-25

	Print the ID for the CMDU/MMDU Where: • c = Core number • s = Slot number • d = Drive number	
IDC IOP	Print out the ID of the active IOP.	basic-18
SDID	Display Security Device Identification of Security Dongle(s)	basic-23
STAT	Get status of IOPs, CMDUs, MMDUs and Ethernet. For the IOP, the Enabled or Disabled, and Active or Standby state is printed. Status is given for active and standby IOPs. For the CMDU/MMDU, Disk redundancy, enabled/disabled, and active/standby status are printed. If Ethernet is disabled, the status (enabled or disabled) is displayed along with an OOS message. The status given for the standby IOP is a software status as it was last seen when that IOP was active. No hardware status is given because the standby IOP cannot be accessed. *For Option 11C*: The STAT command is used to get status of PPP and ELNK. If the status of the IOP or CMDU/MMDU is disabled, one of the following OOS messages may appear: • IOP out-of-service • Unexpected interrupt fault monitor threshold exceeded • Fault interrupt fault monitor threshold exceeded • Processor exception fault monitor threshold exceeded • ASIC interrupt fault monitor threshold exceeded • Unrecognized error fault monitor threshold exceeded • General event interrupt fault monitor threshold exceeded • IOP not responding • IOP disabled by craftsperson • IOP responding but cannot be enabled	basic-18

- CMDU/MMDU out-of-service
- Hard disk read error
- Hard disk write error
- Hard disk drive error
- CMDU/MMDU does not respond, the disk drive may be missing
- CMDU/MMDU has been disabled by the craftsperson
- CMDU/MMDU is disabled because the IOP is out-of-service
- Hard disk is inaccessible: CMDUs are not synchronized
- CMDU/MMDU status is mismatched because of a software error
- CMDU/MMDU is in split mode
- CMDU/MMDU is out of split mode
- No access to hard disk (HDK)

STAT CMDU n	Get status of the CMDU/MMDU. Where: n = Core number (0 or 1). If n is not entered, the status for both CMDUs/MMDUs is printed. If the CMDU/MMDU is disabled, one of the following CMDU/MMDU OOS reason may appear: • Hard disk read error • Hard disk write error • Hard disk drive error	basic-18

- CMDU/MMDU does not respond, the disk drive may be missing
- CMDU/MMDU has been disabled by the craftsperson
- CMDU/MMDU is disabled because the IOP is out-of-service
- Hard disk is inaccessible
- CMDUs are not synchronized
- CMDU/MMDU status is mismatched because of a software error
- CMDU/MMDU is in split mode
- CMDU/MMDU is out of split mode
- No access to hard disk (HDK)
-

STAT CMDU c s d — cpp_cni-25

Get status of the CMDU/MMDU

Where:

- c = Core number
- s = Slot number
- d = Drive number

STAT ELNK — basic-22

Display status of the ethernet link on the active IOP card whether enabled or disabled. The Ethernet address of this active Input Output Processor (IOP) is also displayed.

Since the Local Area Network Controller for Ethernet (LANCE) is equipped on the IOP, LANCE will be disabled when the IOP is disabled.

If the ethernet link is disabled, an OOS reason will be displayed containing the following information:

```
ELNK           ENABLED
Ethernet (In unit number 0):
Host: aaaxxx
Internet address:  xx.xxx.xx.xxx
Netmask:  xxxxxxxxxx ;  Subnetmask: xxxxxxxxxx
xxx packets received ;  xxx packets sent
x input errors ;  x output errors
x collisions
```

STAT HOST — basic-22

Display current run time host table status.

STAT IOP	Display status of the active IOP and Ethernet. This command prints out the status whether the IOP is enabled or disabled. If it is disabled, the OOS reasons are printed. The following IOP OOS messages may appear: • IOP out-of-service • Unexpected interrupt fault monitor threshold exceeded • Fault interrupt fault monitor threshold exceeded • Processor exception fault monitor threshold exceeded • ASIC interrupt fault monitor threshold exceeded • Unrecognized error fault monitor threshold exceeded • General event interrupt fault monitor threshold exceeded • IOP not responding • IOP disabled by craftsperson • IOP responding but cannot be enabled	basic-18
SWAP	Swap the CMDUs/MMDUs. After this command is issued, the active CMDU/MMDU becomes standby, and the standby CMDU/MMDU becomes active. This command is performed only when disk redundancy is enabled.	basic-18
SYNC	Synchronize the hard disks on both CMDUs/MMDUs. This is a sector level synchronization. It is performed by copying the data from the active CMDU/MMDU to the disabled CMDU/MMDU, sector by sector. This can only be done when one CMDU/MMDU is active and one is disabled. The confirmation prompt appears when the system is ready to do the copying: "CMDU n ACTIVE HDK WILL BE COPIED AND DISK RDUN WILL BE ENABLED. ENTER Y TO CONFIRM." Synchronization may take as long as 40 minutes. Progress reports appear on the TTY periodically.	basic-18

TEST CMDU n	Perform test for the CMDU/MMDU. This test includes a self-test, read/write capability test, and disk access test on both hard and floppy disks for this CMDU/MMDU. While the test is in progress, the CMDU/MMDU is inaccessible. Where: n = Core number (0 or 1). You must enter the Core number. A disk must be in the floppy drive when this test is run. If the floppy disk is not present, the floppy disk test will fail. The hard disk test will not be affected.	basic-18
TEST CMDU c s d	Perform test for the CMDU/MMDU Where: • c = Core number • s = Slot number • d = Drive number	cpp_cni-25
TEST CMDU n HDK, FDK	Perform test on the Hard or Floppy Disk. This test includes a self-test, read/write capability test, and disk access test on either the hard or floppy disk drive for this CMDU/MMDU. While the test is in progress, the CMDU/MMDU is inaccessible. Where: n = Core number (0 or 1). You must enter the Core number. A disk must be in the floppy drive to test it. If a floppy disk is not present, the floppy disk test will fail. The hard disk test will not be affected.	basic-18
TEST IOP	Perform the self test on the active IOP and internal loop-back test on Ethernet. The IOP must be disabled to perform this test.	basic-18
TEST RDUN	Perform file level checking on both hard disks. This test ensures that disk synchronization exists. It can only be performed when disk redundancy is enabled. If the test fails, a CIOD message appears, and disk redundancy is disabled. While this test is in progress, the disk is inaccessible.	basic-18

TEST SCSI	Test the SCSI cables. This test ensures the cable connections between the IOPs are present. Access to the CMDUs/MMDUs is tested as well. If the test is successful, OK is printed. If the test is unsuccessful, CIOD messages are printed to indicate the problem.	basic-18

TTY x	Test TTY x. Response is:
	`ABCDEFGHIJKLMNOPQRSTUVWXYZ`
	`0123456789"#$%*!&()<>—.:,.? READY FOR INPUT`
	Anything entered on the keyboard will be echoed until END is input.
		basic-18

LD 143: Customer Configuration Backup and Restore

Overlay 143 introduces the Keycode Management feature for customers with the Input/Output Disk Unit with CD-Rom (IODU/C). Previously, a Keycode was stored on two devices: a Security Cartridge and a Direct.rec file.

A Keycode is a “soft” entity that resides on a customer’s hard disk. A Keycode can be delivered, replaced, upgraded, and downgraded.

All Keycode Management commands are executed in Overlay 143.

Basic commands

ABKO	Attended Backup
ARES	Attended Restore
KDIF k1 k2	Print the differences between two specified keycodes
KMAN	Manually introduce the keycode the same way as form the Installation Tools
KNEW dr	Check and accept new keycode file
KOUT	Delete “keycode.new” file
KRVR d r	Revert the current keycode.rec and keycode.old files
KSHO k	Show content of the currently used keycode file and the differences with the rest of keycode files
KSTT	Print the status of a new (trial) keycode (if any).
KUPL	Upload keycode command.
HELP	View overlay commands on terminal
UPGRADE	Perform Option 11C upgrade
XBK	Remote backup database
XCDR x	CDR file retrieval for small systems
XRT	Remote restore database
XSL	Remote sysload the system
XVR	Remote verify database

Alphabetical list of commands

Command	Description	Pack/Rel
ABKO	Attended Backup. EDD and BKO commands are enhanced to indicate lack of space or other obstacles to perform required backup. In case of failure, an Attended Backup is suggested.	basic-23
ARES	Attended Restore. Attended Database Restore is an interactive process very similar to the existing Install procedure. Installer is prompted to install Database floppies in appropriate order. Note that the identical procedure is used during upgrade of large customer IODU/C machine assuming that Amber will generate multiple 2MB floppies with customer's Database.	basic-23
KDIF k1 k2	Print the differences between two specified keycodes. Where k1 and k2 may have one of the following values: • PEND: pending keycode which is searched for in "/f0", if not found, in "/f1" and finally in "/u" • CURR: current keycode which can be either keycode.rec or keycode.new, both residing in "p/install" on user's hard disk • REC: keycode.rec file residing in "/p/install" on user's hard disk • OLD: keycode.file residing in "/p/install" on user's hard disk • NEW: keycode.new file residing in "/p/install" on users hard disk	basic-23
KMAN	Manually introduce the keycode the same way as form the Installation Tools. The user must input 20 lines, each line containing 16 characters to create a keycode. The "end" string notifies the end of keycode creation. On the 21st line it marks keycode completion; on any other line, it the keycode creation is abandoned.	

KNEW dr — Check and accept new keycode file. — basic-23

Where:

- dr = F0, candidate keycode on diskette in /f0 floppy drive
- dr = F1, candidate keycode on diskette in /f1 floppy drive
- dr = HD, candidate keycode which was uploaded to hard disk

The KNEW command allows changes to ISM parameters to be instantly activated without Sysload. The following message is output:

CCBR020 New Keycode accepted and activated successfully.
Sysload is NOT needed!

KOUT — Delete “keycode.new” file. — basic-23

KRVR d r — The old keycode is reverted to current keycode. — basic-23

Note: Using the KRVR command without parameters implies that the old keycode will be activated and become the permanent keycode after the first restart.

The KRVR command will instantly activate the Old keycode if the only difference between the Old Keycode (Keycode.old) and the new Keycode (Keycode.rec) is that some or all of the ISM parameters in the Old Keycode are higher.

After the KRVR command has been entered, the following new message is printed if the system has instantly activated the Old Keycode:

CCBR020 New Keycode accepted and activated successfully.
Sysload is NOT needed!

KSHO k — Print the content of the currently used keycode file and the differences with the rest of keycode files. — basic-23

Where k may have one of the following values:

- PEND: pending keycode which is searched for in “/fo”, if not found, in “/f1” and finally in “/u”
- CURR: current keycode which can be either keycode.rec or keycode.new, both residing in “/p/install” on user’s hard disk
- REC: keycode.rec file residing in “/p/install” on user’s hard disk
- OLD: keycode.old file residing in “/p/install” on user’s hard disk
- NEW: keycode.new file residing in “/p/install” on user’s hard disk

KSTT — Print the status of a new (trial) keycode (if any).

KUPL	Upload keycode command. In the Meridian 1 system window, paste the new keycode after the Upload keycode prompt. Pressing enter will upload the keycode and initiate validation.	
HELP	View overlay commands on terminal	basic-23
UPGRADE	Perform Option 11C upgrade. This command invokes the Install Setup Program. To perform an installation, the installer inserts a Software Delivery Card in the PCMCIA slot on the System Core Card. Then, on TTY 0, the installer may invoke the Setup Program by using the UPGRADE command in LD 143. The UPGRADE command allows changes to ISM parameters and feature packaging to be instantly activated without Sysload upon keycode acceptance. The following message is output: **Upgrade was completed and activated successfully.** **Sysload is NOT needed!**	opt11c-22
XBK	Remote backup database Backup the configuration files from the primary flash drive of the Option 11C system onto a computer.	opt11c-22
XCDR x ALL	Small system CDR file retrieval from one or all IP expansion cabinets after the expansion cabinet restores to slave mode. Where x is: • 1, 2, 3, or 4, IP expansion cabinet When the command is succesful, the retrieved file is deleted on the expansion cabinet.	sipe-25
XRT	Remote restore database Restore the files from a computer into the primary flash drive of the Option 11C system.	opt11c-22
XSL	Remote sysload the system Sysload the Option 11C system from the primary flash drive.	opt11c-22
XVR	Remote verify database Verify the files on a computer with the files in the primary flash drive of the Option 11C system.	opt11c-22

Meridian 1

Software Input/Output Guide

Maintenance

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